November 20, 2019

Chris Cramer, Ph.D.
Vice President for Research and Institutional Official
419 Johnston Hall
101 Pleasant Street SE
Minneapolis, MN 55455

Dear Dr. Cramer,

Attached is the official Fall 2020 Semiannual Report of the Institutional Animal Care and Use Committee. The IACUC concluded its semiannual evaluation of the institution's animal care and use program on October 22, 2019 using the Guide for the Care and Use of Laboratory Animals (Guide), the Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching (Ag Guide), the refined OLAW checklist, and as applicable, the Animal Welfare Act Regulations as the basis for its evaluations. The IACUC met to discuss the results of semiannual inspections, conduct a Program Review, and evaluate other features of the animal care and use program.

The IACUC inspected all animal facilities and holding areas and many research laboratories; additionally, post-approval monitoring was conducted by IACUC compliance officers and committee members. Significant and minor deficiencies were documented. All of these deficiencies have been corrected at the time of this report. Please see the attached reports for details of each area inspected.

Please see the program review meeting notes for further detail on the issues discussed by the IACUC during this program review session.

Thank you for your continued support of IACUC activities.

November 19, 2019 Program Review

Please sign in below

Name	Signature
Dezhi Liao	
Scott Madill	
Scott Opper	
Peggy Norris	Peggy Norris
Robert Schumacher	
Lynn Impelluso	
Minnie Pollard	Minnie Pollard
Brian A. Crooker	Brian A Crooker
Ben Clark	
Keith Barker	attended online
Georgiy Aslanidi	attended online

Fall 2019 Semiannual Program Review
October 22, 2019

Voting Member Attendees:

Keith Barker, Dezhi Liao, Melanie Graham, Bob Schumacher, Sally Noll, Brian Crooker, George Aslanidi, Lynn Impelluso, Kristin Pilon, Nate Koewler, Don Martin, Marilyn Bennett, Henry Wong, Scott Madill, [redacted]

Alternate Member Attendees and Guests:

Frances Lawrenz, Laura Hocum-Stone, Geoff Ghose, Kakambi Nagaraja, Cynthia Lee, Ilana Cohen, Megan McCoy, Paul Lindstrom, Jennifer Borgert, Jodi Ogilvie, Margaret Luesse, Christine Sivula, Dan Montonye, Jen Hubbard, [redacted], Felicia Boynton, [redacted], Whitney McGee

1. **Agenda:**

- Inspection Summary (pg 2-4)
- IMHA Summary (pg 4)
- PAM Frequency Reduction Implementation Plan (pg 4-5)
- IACUC Office Administrative Summary (pg 6-7)
- Program Discussion Summary (from FCR Meetings) (pg 8-15)
- Cephalopod subcommittee update (pg 15)
- eProtocol Form Updates (pg 16-30)
- Pain classification (pg 31)
- DEHS section and other areas overseen by other groups (pg 32)
- Health and Monitoring: does frequency of monitoring include RAR and lab monitoring frequency combined? (pg 32)
- Pre-worded answers available to PIs for common procedures or treatments (pg 32)
- Veterinary pre-consult (pg 32)
- RAR training offered (pg 32-33)
- OLAW Checklist (pg 33-43)
- Appendices
    a. RAR Training Presentation Slides (pg 45-48)
    b. Inspection Dates (pg 49-51)
    c. IMHA List and Justifications (pg 52-82)
    d. Reduced PAM (pg 83-88)
    e. Complete Inspection Report Summary (pg 89-165)
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    g. Administrative Summary and Graphs (pg 295-312)
    h. Expired and Holding Protocol Summary (pg 313)
    i. Repeat Significant Findings (pg 314-318)

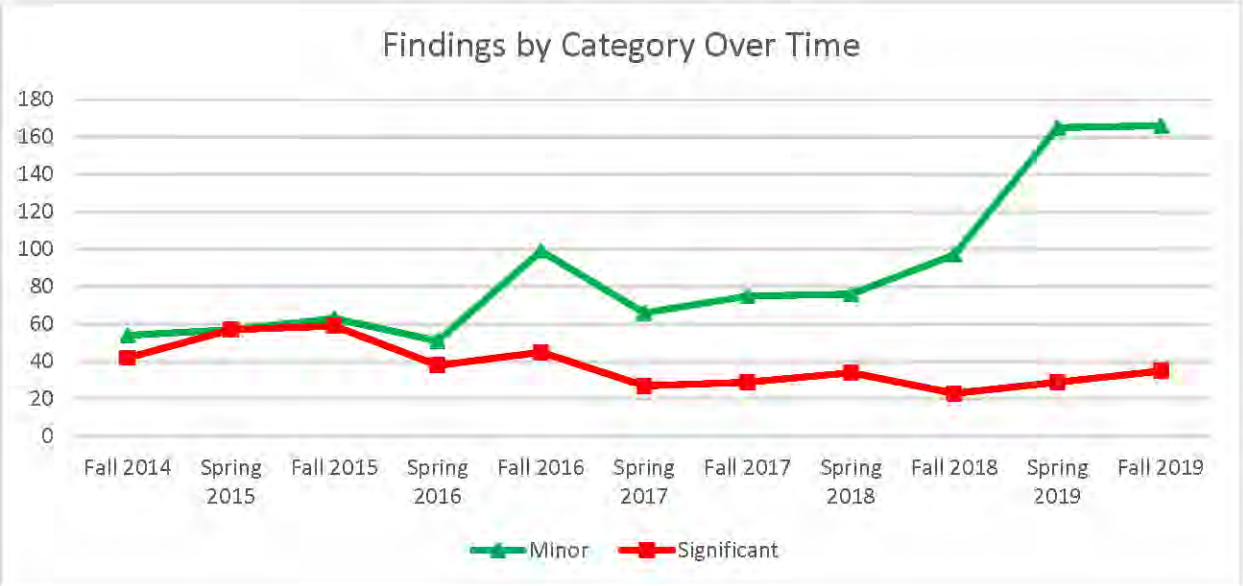
2. Inspection Summary

The Institutional Animal Care and Use Committee Senior Compliance Officer, Kristin Pilon, presented the Fall 2019 IACUC inspection report.

There were 286 inspections resulting in 201 findings for this six-month cycle. There were 166 Minor Findings and 35 Significant Findings. Twenty percent of the Significant Findings (7) were reported to OLAW.

- 7 reports sent to OLAW
- 192 laboratory areas that had no findings
- 5 repeat findings with three repeat significant findings (one of the same finding and two in the same laboratory but different types of significant findings noted)
- 13 notes to file
- 18 veterinary recommendations
- 39 laboratories that qualified for reduced post approval monitoring frequency

	Fall 2019 April 2019—September 2019	**Spring 2019 October 2018—March 2019**
Significant	35	29
Minor	166	165
Total	201	194



NOTE: Additional data and graphs located in appendices

There was a slight increase in percentage in total findings this six-month cycle from last six month cycle (0.04% increase—194 findings in Spring 2019 with 201 findings this six month cycle).

The increase can be attributed to the increase in significant findings, as the percent increase in minor findings was negligible.

At the time of Program Review, both the significant and minor findings had been corrected and the reports closed.

There was an increase (21%) in significant findings this past cycle (35 findings found during this six-month period and 29 findings noted during the Spring 2019 six-month reporting period).
Of these 35 significant findings noted during this six-month cycle, five of them (14%) came from either self- reports or outside reports of non-compliance that came into the IACUC whereas 30 findings came from our standard inspection process during the last six months. Additionally, there were three investigators with repeat significant findings (one laboratory had the same finding and two laboratories had different significant findings) noted on their most recent inspections. An email was sent to each of these investigators offering guidance and help to better improve compliance in their laboratories.

There were three areas for which we saw the greatest increase in significant findings this six-month cycle. This includes a 400% increase for which animals were housed outside of RAR facilities without approval (4 found this six month cycle with no findings of this type noted in the Spring 2019 cycle), 500% increase for which anesthetic procedures were conducted on animals but not approved (5 findings of this type found this six month cycle with no finding of this type noted in Spring 2019) and a 700% increase for which analgesics were not given for the type or duration approved in the protocol (8 findings noted this six month cycle with only two of this type of finding noted in Spring 2019). The IACUC will be focusing efforts in order to try to minimize the number of analgesic deficiency type findings by sending out list serve announcements reminding investigators to pay closer attention to the timing of SR-buprenorphine or Carprofen administration.

Of these significant findings, fifteen of the thirty-five finding could be considered animal welfare issues (43%).

The increase in the Minor Findings category for this six-month reporting cycle was negligible with 165 findings noted in Spring 2019 and 166 findings noted this Fall 2019 cycle. The following categories that saw the increases were the following: Expired Items (4 findings of this type noted this six month cycle with 1 noted during the Spring 2019 cycle, Husbandry (14 noted this six month cycle with 6 noted in Spring 2019), and Occupational health program requirements not met (13 noted this six month cycle with 11 noted in Spring 2019).
During the six month cycle, Committee members have been alerted as to the uptick in aseptic technique findings. While we have seen an increase, it was still less than the last six month cycle (13 findings of this type noted this six month cycle with 18 noted in Spring 2019). Compliance staff will continue to distribute the RAR training that is offered so as to mitigate these types of findings. Additionally, the area which saw the greatest decrease in findings were the Ag areas with 6 findings noted this six month cycle and fifteen noted Spring 2019 (60% decrease).

Within the program review documents, findings have been defined by type (IACUC (178), DEHS (0), OHS (16) and Ag (7) as well as from what inspection/report they were identified or came from (PAM (100), Second Surgery (18), Initial Surgery (5), Initial surgery/semi-annual (0), Semi-annual (20), PAM/Semi-annual (27), Second Surgery/semi-annual (13), Ag (7), Self-Report (10), Outside Report (1)).

As stated previously, we had 286 inspections during this six-month period. These inspections have been categorized as to type performed with 117 Post Approval Monitoring (PAM) Inspections, 28 combined PAM/semi-annual, 36 Second Surgery inspections, 8 Second Surgery/Semi-annual inspections, 74 semi-

annual inspections and 16 Ag inspections conducted over this six-month period. Additionally, as part of our reduced PAM inspections we had 6 initial surgery inspections and 1 initial surgery/semi-annual inspections.

There was a slight increase in the number of laboratories that had no findings from the Spring 2019 six-month cycle versus this Fall 2019 cycle (190 to 192 respectively).

There was a slight decrease in the number of repeat findings found during inspections this last six month cycle (six noted in Spring 2019 and five noted this six month cycle). There were two repeat findings in the minor category with three significant repeat findings.

An overview of the Notes to File was given. These thirteen Notes to File were reported on a monthly basis during a full committee review meeting to confirm that these changes should not have required a submission from the PI. These Notes were obtained either through a submission to the IACUC office or through an inspection of the laboratory for which additional information was noted but did not change the procedures that were originally reviewed and approved by the IACUC.

There were eighteen veterinary recommendations this reporting period. These recommendations are changes to protocol for which the veterinary team approves while an amendment is submitted by the PI in cases where the change will be for the betterment of the animal. These veterinary recommendations were reviewed during the same time the monthly findings report and notes to file are discussed.

3. Current IMHA Summary

An overview of the IMHA spaces with justification for housing was presented to the IACUC at this program review. We have 120 PIs that have requested and approved housing of animals outside of Research Animal Resources in our tracking database. These PIs utilize 65 different areas.

4. PAM Frequency Reduction Implementation Plan (OVPR Risk Recalibration Initiative)

Reduced Post Approval Monitoring frequency was initiated in April 2012, after that Spring Program Review.

There were 145 PIs that did not qualify for reduced post approval monitoring inspections and had their post approval monitoring (PAM) or combined PAM/Semi-annual inspections completed due to not meeting our standard qualifications of reduced frequency. There were 39 PIs/laboratories that were due for post approval monitoring inspections but who did not receive their inspections as they qualified for reduced frequency (so either did not have an inspection or if surgery was conducted in the laboratory, only had a surgery portion of the visit and the PAM portion was not conducted). Additionally, there were 74 PIs that were due for PAM but either did not receive an inspection as they did not have any active studies, were put on hold (inactivation) due to no response at continuing review or had put their studies on hold due to limited funding or performing solely data analysis.

As background, post approval monitoring inspections are normally conducted yearly for all PI's who are currently performing experimental procedures on animals. The only PI's that do not currently receive yearly PAM inspections include: Fisheries and Wildlife studies except those that house animals on campus, Client Owned animal studies and Agricultural studies. The proposal includes reduction of PAM visit to every other year for those areas that meet the following criteria:

- No significant findings within the last two years

- No concerns or complaints made of the laboratory through RAR, RAR veterinarians, outside entities or through compliance staff concerns
- No repeat findings on most recent inspection
- No minor findings noted from most recent inspection other than ROHP non-compliance
- No additions of a different species to be used in the laboratory (either on original protocol or through a new submission)

If any of the above are noted, the laboratory would go back onto yearly PAM visits until all criteria are again met.

Laboratories that are considered "Euthanasia and Tissue Harvest" would be able to go onto this schedule if above criteria are met. Our office will continue to perform mandatory semi-annual inspections of laboratories that conduct either non-survival or survival surgical procedures for compliance. Those laboratories in good standing would receive twice-yearly inspections of surgical areas and procedures, records, aseptic technique, anesthetics/analgesics used, euthanasia methods, endpoints, ROHP compliance, etc…but would NOT receive a PAM inspection portion during these visits.

4. Administrative Statistics for Fall Program Review 2019:

- Total FCR submissions April 2019 – September 2019: 65
- Total DMR submissions April 2019 – September 2019: 531
- Review Outcomes:

FCR
Number of new protocols: 51
Number of new protocols that received stipulations: 45
Number of new protocols that were approved as submitted: 5
Number of new protocols that were deferred: 1

Number of amendments: 14
Number of amendments that received stipulations: 11
Number of amendments that were approved as submitted: 2
Number of amendments that were deferred: 1

DMR
Number of new protocols: 185
Number of new protocols that received stipulations: 149
Number of new protocols that were approved as submitted: 34
Number of new protocols that were sent to FCR: 1

Number of amendments: 346
Number of amendments that received stipulations: 205
Number of amendments that were approved as submitted: 138
Number of amendments that were sent to FCR: 0

- Median Approval Times for submission from October, 2018 – March 2018

FCR

New Protocols:
Days from receipt of submission to meeting: 8
Days from meeting date to initial letter sent: 2
Days from stips sent to responses received: 6
Days from submission to approval: 28

Amendments:
Days from receipt of submission to meeting: 10
Days from meeting date to initial letter sent: 2.5
Days from stips sent to responses received: 2
Days from submission to approval: 20

DMR:

New Protocols:
Days from receipt of submission to agenda assignment: 2
Days from agenda assignment to all reviews received: 9
Days from reviews received to first letter sent: 2
Days from stips sent to responses received: 4
Days from submission to approval: 26

Amendments:
Days from receipt of submission to agenda assignment: 3
Days from agenda assignment to all reviews received: 8
Days from reviews received to first letter sent: 3
Days from stips sent to responses received: 3
Days from submission to approval: 20

5. Compilation of IACUC Discussion Notes April 2019 – September 2019

- **INSTITUTIONAL PRACTICES, POLICIES, AND RESPONSIBILITIES**

APR. The committee discussed a study that will use octopi. Although there are no current regulations in the U.S. mandating IACUC review of this work as they are invertebrates, due to the intelligence of the species, European institutions and AAALAC have begun to require a review of these studies. The committee discussed the issue further at program review and has established a subcommittee to research the topic and bring a recommendation back to the IACUC.

AUG. The committee discussed the previous approval of an exception for the use of unopened sterile saline bags for up to six months after opening. The exception had been granted in response to a shortage. Now that production and supply are back to normal, the temporary use of expired saline has been terminated. An announcement to PIs will be sent via the PI Google Groups.

- **PROTOCOL DISCUSSION AND REVIEW**

JUL. The committee reviewed a proposal to update the text in the Breeding Procedure of the protocol form. The change would eliminate the question "What are the criteria for euthanasia of the Breeders?" and instead provide recommendations for euthanasia of rodent breeders (see below). Other links or recommendations may be provided in the future for other species.

> "Recommended Mouse Breeder Retirement Criteria:
> - They produce no litter within 60 days of mating (longer may be acceptable if delayed breeding is a strain characteristic).
> - They produce no litter within 60 days of their last litter and are not visibly pregnant.
> - They produce litters but do not wean pups for two to three litters."

The committee approved this change and we will strive to update the protocol form by 2019 Fall Program Review.

JUL. The committee discussed DEHS requirements for IACUC protocols. The committee was reminded that DEHS does not require inclusion of the following chemicals or SOPs for the following chemicals:

- [redacted]
- [redacted]SO
- [redacted]
- [redacted]formaldehyde

- Isoflurane
- Luciferin
- MS-222
- LPS

- **SELF-REPORTS and OUTSIDE REPORTS**

APR. The committee reviewed a self-report in which two mice were anesthetized with ketamine/xylazine in preparation for transurethral infection with E. coli. Following the procedure, cages were placed on heating pads to aid recovery, but the lab failed to return the animals to the housing rack. RAR returned them the following morning.

The following corrective action plan has been implemented to ensure that this does not happen again:

1. All Syntiron employees that are approved to handle animals will be informed about post-anesthesia monitoring requirements and directed to re-read the appropriate section of the IACUC protocol.
2. For any procedures that require anesthesia, one person from the Syntiron animal team will remain at the University to monitor the mice continuously until they recover (are mobile and able to access water).
3. If the monitor needs to leave the animal room, it will be for no more than 15 minutes, in accordance with current IACUC policy.

The committee had no additional concerns and considers the matter closed.

APR. The committee was updated on a self-report in which two client owned naïve goat kids were delivered but then returned to the client without being used on the study. They were replaced with two healthier animals. The PI transported the animals rather than RAR or the client as neither was available at the time. In the future the protocol will be amended to allow for transport by the investigator under special circumstances and with permission of RAR veterinarians. The committee had no additional concerns and considers the matter closed.

MAY The committee discussed a U Report that alleged an investigator had staff do procedures for outside biotech companies that were not approved on protocol, housed animals in his laboratory, took animals home, and pressured lab staff into not sharing information with IACUC. The IACUC chair and vice chair met with the PI and will attempt to contact lab staff regarding this allegations. The committee will be updated as additional information is collected.

MAY The committee discussed an RAR self-report regarding a rabbit kit that was found out of its cage. The kit appeared dehydrated and was administered SQ fluids and dextrose. It is believed the animal was out of the cage for less than 48 hours. There had been

additional equipment temporarily stored in the room due to flooding that had occurred in another area that may have prevented animal care staff from identifying the kit outside of the cage. Now that the animals are in a housing room without additional equipment and the PI is marking the card each time he takes a kit RAR feels that they can quickly recognize and address escaped animals moving forward and do not anticipate this happening again in the future. The committee suggested that RAR be reminded not to allow rooms to become cluttered and considers the matter closed.

MAY The committee was updated regarding a self-report in which a cranial window was applied to mice receiving cranial injections. While the surgical procedure was approved, the protocol listed closing with sutures and did not include the option for a cranial window. There were no adverse effects identified on these animals. The PI has submitted an amendment to account for this possibility in the future and the committee considers the matter closed.

MAY The committee was updated on a lab that contacted the IACUC office and area veterinarian to try perfusing a group of mice to improve immunolabeling. The lab perfused a group of animals under supervision of the area vet and personnel trained in perfusions. The lab has since updated the protocol to include perfusion for future animals. The committee had no additional concerns and consider the matter closed.

MAY The committee was updated on minor change that was approved by the area vet to allow an extension of single housing for mice for 2 additional days. The committee had no additional concerns and consider the matter closed.

MAY The committee discussed a self-report regarding the occurrence of frostbite after hypothermia induced anesthesia. After discussing this issue with the RAR veterinarian, the lab is planning to take the following steps to try and minimize the occurrence and extent of frostbite.

- "Slower rewarming. Rewarming is currently done by holding the pup under a heat lamp untilthey start breathing, and then placing them in a cage that is put on a heated pad. We discussed 3 strategies to slow down the rewarming process.

    a. hold the pup further away from the heat lamp
    b. warm the pup up by holding it in your hands until it starts to breath
    c. slow down rewarming by skipping heat lamp or hand held rewarming, and instead placing the pup in a heated cage (ideally 33°C)

- Protect the tail by applying vaseline before inducing anesthesia
- Change induction of anesthesia to a method where water is not added to the ice, and keep the pups on ice during the surgery. I mentioned how I would prefer to try this as a last resort strategy, because it doesn't lower the core temperature down to a complete cessation of heart beat, and this inherently has a higher risk of mortality when we resect the apex of the heart (due to bleeding out). "

The committee had no additional comments and considers the matter closed.

MAY The committee discussed an RAR self-report. On the weekend of May 4-5 RAR was responsible for providing post-operative care to an NHP that had undergone surgery on May 2 (craniotomy and viral tracer injection). Post-operative care included the administration of medications - Loxicam, Excede and diphphenhydrmine. The vet tech on duty misread the instructions for giving Loxicam on the treatment log and did not give that medication on Saturday, May 4 resulting in the NHP not receiving analgesia on that day. As this has occurred multiple times in recent months, the committee asks for the following additional information.

- Please clarify if this technician has previously provided the incorrect care for animals, in particular regarding to analgesic regimens. If so, provide the past occurrences.
- Please provide the training records for the veterinary technician and a summary of any applicable supplemental information regarding specific training on animal care that was provided to the technician
- Please provide a sample of the treatment log that was posted for the veterinary technician to review for weekend care
- Please clarify how cages are labeled to indicate the time of initial surgery for animals under post-op care
- Please address what changes in process may be leading to an increase in the number of incidents where veterinary technicians have not provide the prescribed treatments to be given to an animal
- Please provide potential secondary checks or other methods that could be implemented to ensure these events do not occur

MAY The committee discussed a self-report in which "on Feb 5, 2019 the lab initiated isolation stress treatment as stated in our protocol. Animals were placed in conical restrainer and placed back into the box. The care technician came in and tampered with the boxes and the restrainers. This extra handling led to the animals getting turned around in the restrainer, limiting their gas exchange. Three animals died of accidental asphyxiation." The committee asked for the following additional information regarding the incident:

- Please provide the records of the three animals in question
- Please clarify how long these animals were in the stress test
- Please provide additional information about the stress treatment including: whether the size of the conical in relation to the size of the mouse allows for animals to turn around; the size of the air holes in the conical and whether they are located at both ends of the conical to allow for air exchange in the event that one hole is blocked
- Please provide more detail regarding the experience the lab has with this particular stress test including the number of animals that have successfully

undergone this procedure versus the number that have died of asphyxiation or had other unexpected complications
- Please address whether additional provisions should be made for observation of the animal at more regular intervals or continuously

MAY The committee was updated on the death of a display snake in Morris. The animal was old and there were no signs of distress.

JUN. The committee was updated on the recent UReport that alleged an investigator had staff do procedures for outside biotech companies that were not approved on protocol, housed animals in his laboratory, took animals home, and pressured lab staff into not sharing information with IACUC. The IACUC chair talked with a former lab manager about these allegations and although the lab manager would not corroborate any of the items in the UReport, the manager did have concerns with the trusting the PI. The committee considers the matter closed as there was no further information confirming allegations, but will have some unannounced visits by the compliance staff.

JUN. The committee continued to discuss an RAR self-report in which weekend treatment was not provided as outlined. The committee reviewed treatment logs, the training records for the veterinary technician involved, and SOPs for weekend care. RAR staff also responded to questions from the committee regarding the communication between veterinarians and veterinary technicians to prepare for weekend care and during the weekend should questions or difficulties arise. In response to the information provided, the committee had two additional requests

- Following the RAR/ESS report discussed at the February 12, 2019 IACUC meeting, vet technicians were to receive retraining on the processes for weekend care. Please provide the committee with an update regarding this retraining session including whether it has been completed or when it will be scheduled
- The committee noted that there are several refinements to the communication process for weekend care between veterinarians, veterinary technicians, and other RAR staff that are not included in the SOPs provided to the IACUC. Please update the SOPs to reflect the current practices for weekend care including communication between area veterinarians, the weekend on call veterinarian, and veterinary technicians

JUN. The committee discussed lab responses to a self-report in which mice died of asphyxiation while under restraint. The lab outlined changes that have been made to prevent this from happening in the future. The committee has no additional concerns and considers the matter closed.

JUN. The committee discussed a self-report in which six mice were treated with diphtheria toxin without being transferred to the appropriate experimental protocol. The animals did not undergo any other experimental manipulations, but five of the six animals became ill and were euthanized as requested by the vet staff on 5/9/19. The sixth animal that was not showing signs of illness was also euthanized at the same time. Moving

forward, the lab will transfer animals from the breeding protocol to the experimental protocol at the time of weaning. The committee has no additional questions and considers the matter closed.

JUN. The committee discussed a protocol which had recently submitted an amendment to request additional animals after animals on study were not used for the second planned surgery due to scheduling conflicts with the surgeon. There were no welfare concerns. The committee had no additional questions and considers the matter closed.

JUN. The committee discussed a self-report in which an MD/PHD student was inadvertently not listed as personnel on a study that they were working on. The lab has since added the person to the protocol. The committee has no additional questions and considers the matter closed.

JUL. The committee discussed the responses received from RAR regarding recent issues with weekend care. The committee noted that the SOP should be updated to include the opportunity for weekend staff to visit areas and details on communication with PIs about weekend care. In addition, the current records system does not consistently maintain records in the same room that animals are housed and some PIs noted that a single folder or location that listed all RAR records, procedures and care for an animal would be helpful. IACUC leadership will continue to work with RAR discussing ways to improve communication with PIs and the availability of records.

JUL. The committee discussed a self-report regarding an animal that was burned by an electric heating pad. Insulation had been provided and the heating pad was set to the low setting. The lab will use a recirculating water heating device to prevent a recurrence of this event. The IACUC will also contact other labs conducting survival surgery on USDA regulated animals to inform them that recirculating water heating pads should be used rather than electric heating pads.

JUL. The committee discussed a self-report in which an animal on study with vestibular disease received treatments, but these treatments were not documented. The lab has retrained staff about the importance of documenting all treatments. The committee considers the matter closed.

JUL. The committee discussed a self-report in which a lab was not shaving the surgical site prior to surgery. The lab had used scissors to remove hair in this area as the incision was less than 2 mm. Moving forward the lab will use nair or shave the site to ensure that the hair is adequately removed. The committee considers the matter closed.

JUL. The committee discussed a self-report regarding animals that were housed in a lab for over 24 hours to acclimate the rats prior to undergoing behavioral tests. The lab did not have an approved IMHA and has been informed that they will need to get an IMHA approved before extended housing can be done again. The lab will work with the IACUC office to get an IMHA approved if it decides to continue using an extended acclimation that is longer than 24 hours. The committee considers the matter closed.

JUL. The committee discussed an UReport regarding a pig on study. The report outlined an animal that was under dosed with SR Buprenorphine due to use of the wrong formulation. The animal did have multiple analgesics onboard and the endpoint was accelerated for a more humane endpoint. The IACUC leadership group is currently investigating the issue and will provide the committee with more information at the next IACUC meeting for further discussion.

AUG. The committee discussed a PI response to a request for an action plan to address ongoing non-compliance. The committee endorsed the plan outlined by the PI and had no additional comments.

AUG. The committee discussed a self-report in which a leg injury was identified in a client-owned duck that was on a UMN IACUC Protocol. Lab staff consulted with the area veterinarian and the animal was treated. The PI will update the protocol to outline a course of action for instances where non mortal injuries are identified in animals while on study.

SEPT. The committee discussed a UReport regarding a pig on study. The report outlined an animal that was under dosed with SR Buprenorphine due to use of the wrong formulation. The animal did have multiple analgesics onboard and the endpoint was accelerated for a more humane endpoint. The area veterinarian and other veterinary staff were consulted on the issue, and indicated that there was no change or increase in pain status due to the incorrect formulation. While notification of the PI did not occur, RAR has stated that moving forward, the PI will be notified in the event that issues like this occur. The committee considers the matter closed.

SEPT. The committee was notified of an anonymous report regarding primarily HR issues. The leadership group will collect additional information to bring back to the committee to determine if there are animal welfare concerns in addition to the HR component.

SEPT. The committee reviewed the updated RAR SOP outlining weekend care. The updates were made in response to a June RAR self-report. The committee had no additional comments or suggestions regarding the SOP. The committee considers the matter closed now.

SEPT. The committee discussed a self-report in which a naïve pig was prepared for a study on a separate protocol. As the pig had not undergone any previous procedures, the animal was transferred to the corresponding protocol. The committee had no additional comments and considers the matter closed.

SEPT. The committee discussed a self-report in which animals were not transferred appropriately between protocols. The animals are approved to be used for two labs occurring over the same afternoon, however, these procedures are outlined on two

separate protocols making it difficult to complete the transfer as the labs are concurrent. Procedures have been consolidated to one protocol to avoid this administrative oversight in the future. The committee had no additional comments and considers the matter closed.

SEPT. The committee discussed a report outlining a concern about an animal that was euthanized early due to complications with an implant. The animal had undergone emergency surgery to repair an implant that had come out. There was concern that the animal was too deeply anesthetized, but review of the surgical records and interviews with those involved with the surgery did not corroborate this concern. The committee considers the matter closed.

- **SUBCOMMITTEE UPDATES**

Endpoints Subcommittee: No updates

Subcommittee on Cephalopod Use: The committee has reached out to the PI planning to use cephalopods. The PI was on sabbatical over the summer working with other investigators Marine Biological Laboratory to learn more about housing for cephalopods. The subcommittee will meet with the PI this semester now that PI has returned.

6. eProtocol Form Updates

IACUC Form Changes

September 2019 – Current PROD IACUC-R1S1 Form edited 2105 Effective Date 7/27/2018

Sections with Changes

Page 17. Rationale – Add New Question

Page 18. Species – Add Text

Page 19. Procedures –Update Link

Page 20. Procedure Details – Update Link

Page 21. Procedure – Antibody Production – Remove Link

Page 22. Procedure – Behavior – Update Text and Link

Page 23. Procedure – Breeding – Remove Question, New Text, New Link

Page 24. Procedure – Dietary or Fluid Modification – New Link

Page 25. Procedure – Physical Restraint – New Link

Page 26. DEHS – Remove Checkboxes/Text, Update Text

Page 27. Chemicals – Update Text, Update Link

Page 28. Radiations – Update Link, Update Text

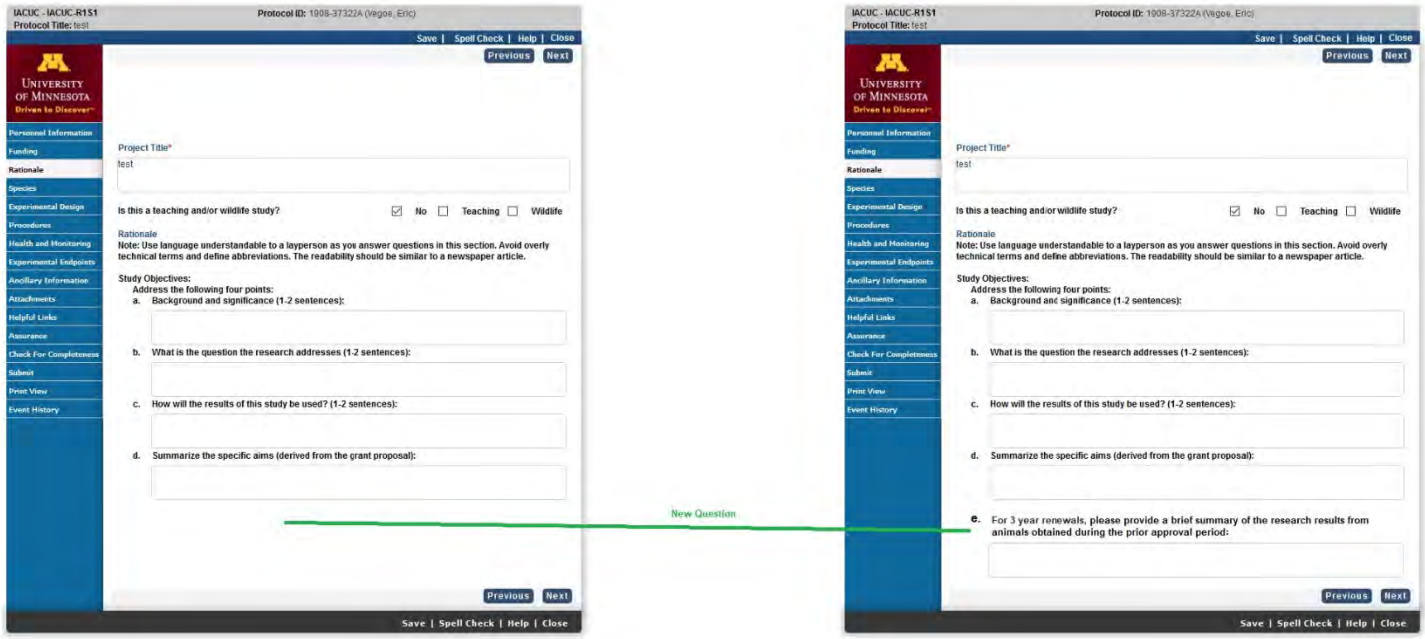
Page 29. Continuing Review – New Question

Page 30. Amendment – Update Text

Changes for the Rationale Page

- Include under “study Objectives:

  e. For 3 year renewals, please provide a brief summary of the research results from animals obtained during the prior approval period.



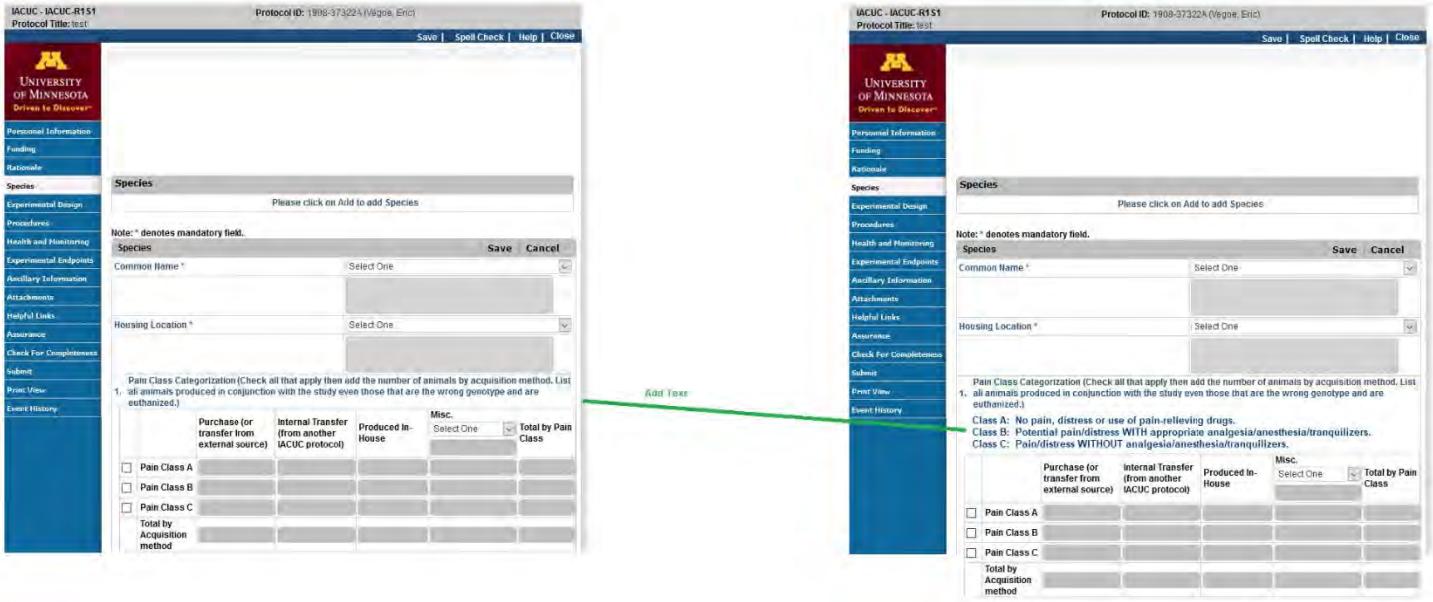
Changes for the Species Page

- Pain class information is no longer listed below "1. Pain Class Categorization (Check all that apply then add the number of animals by acquisition method. List all animals produced in conjunction with the study even those that are the wrong genotype and are euthanized.)" Please list the following below the species table:

  "Class A: No pain, distress or use of pain-relieving drugs.

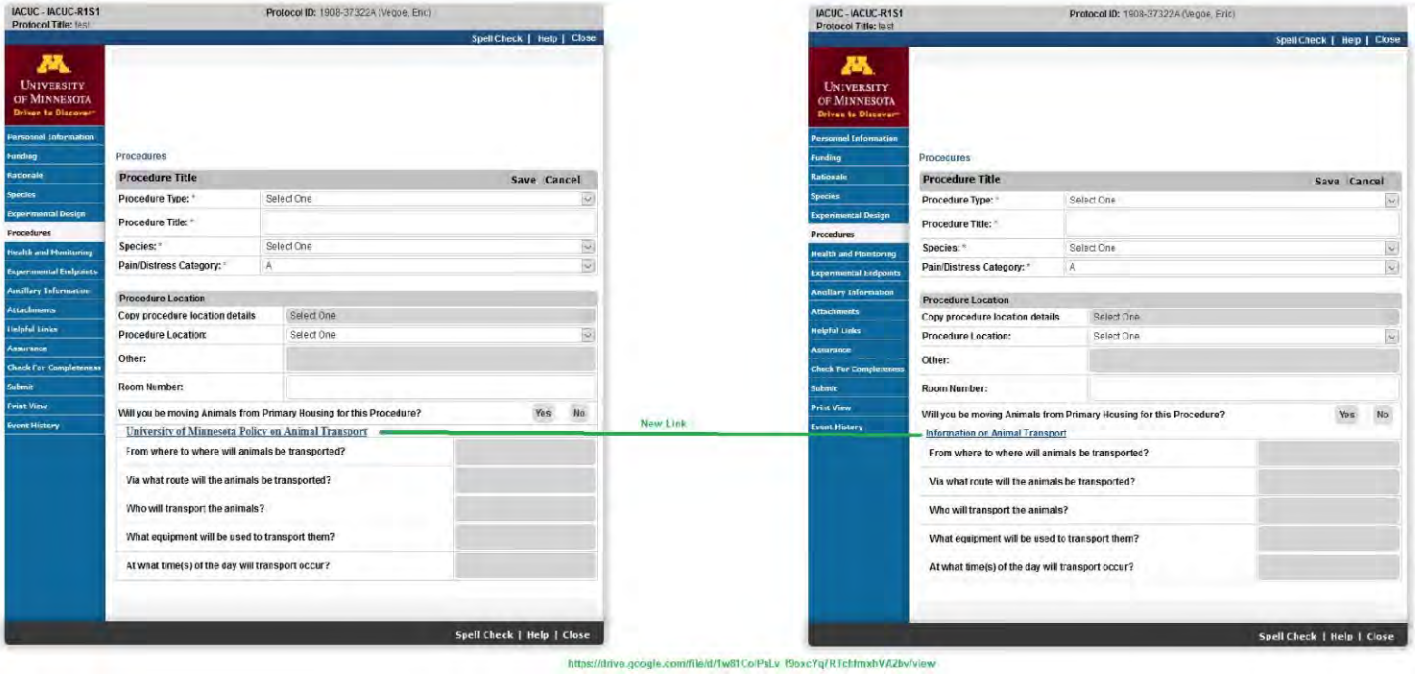
  Class B: Potential pain/distress WITH appropriate analgesia/anesthesia/tranquilizers.

  Class C: Pain/distress WITHOUT analgesia/anesthesia/tranquilizers."



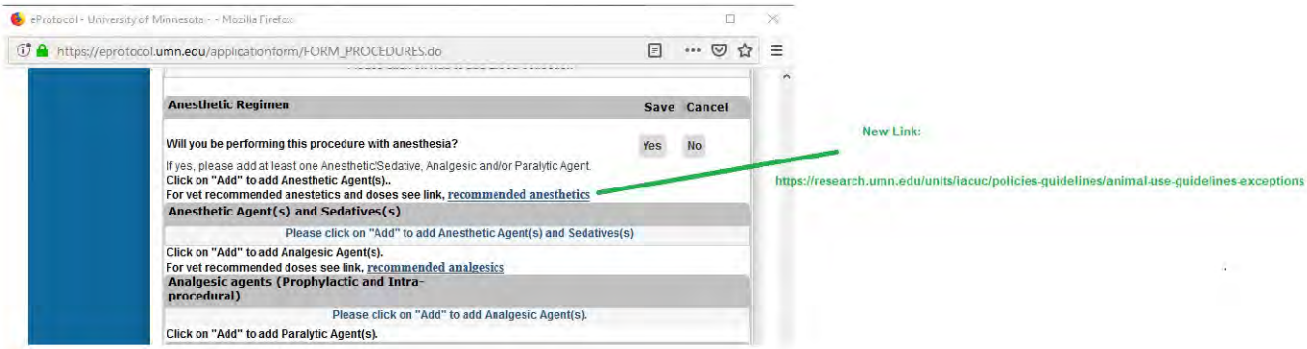
Changes for the Procedures Page

Change link from University of Minnesota Policy on Animal Transport	To Information on Animal Transport
https://drive.google.com/file/d/1w81ColPsLv_f9oxcYq7RTchfmxhVA2bv/view	



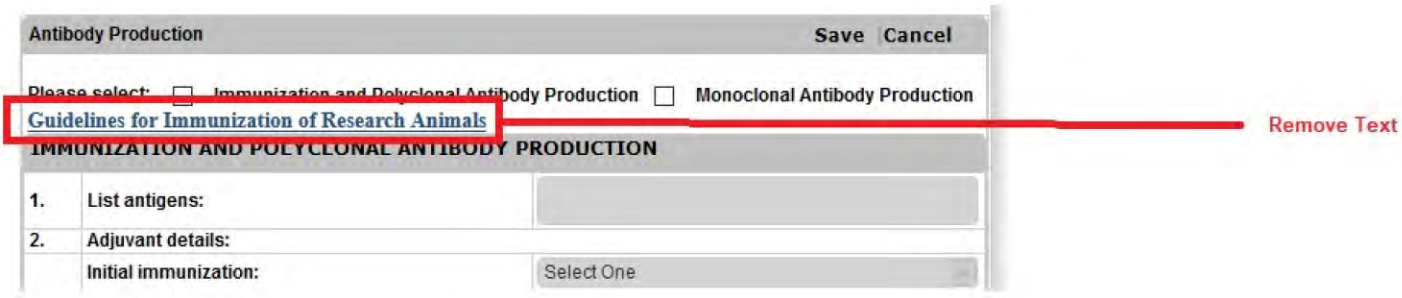
Changes for the "Anesthetic Regimen" and "Analgesic Regimen" fields listed on Procedure Pages

Change recommended anesthetics link to	recommended anesthetics
https://research.umn.edu/units/iacuc/policies-guidelines/animal-use-guidelines-exceptions	



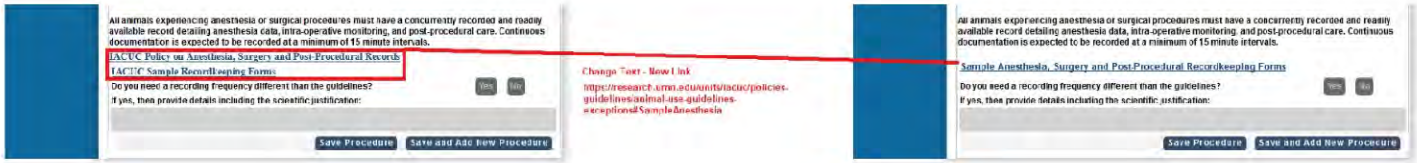
Changes for the Antibody Production Procedures Page

Remove Guidelines for Immunization of Research Animals



Changes for the Behavior Procedures Page

Change these two links to one link IACUC Policy on Anesthesia, Surgery and Post-Procedural Records IACUC Sample Recordkeeping Forms	Sample Anesthesia, Surgery, and Post-Procedural Recordkeeping Forms
https://research.umn.edu/units/iacuc/policies-guidelines/animal-use-guidelines-exceptions#SampleAnesthesia	



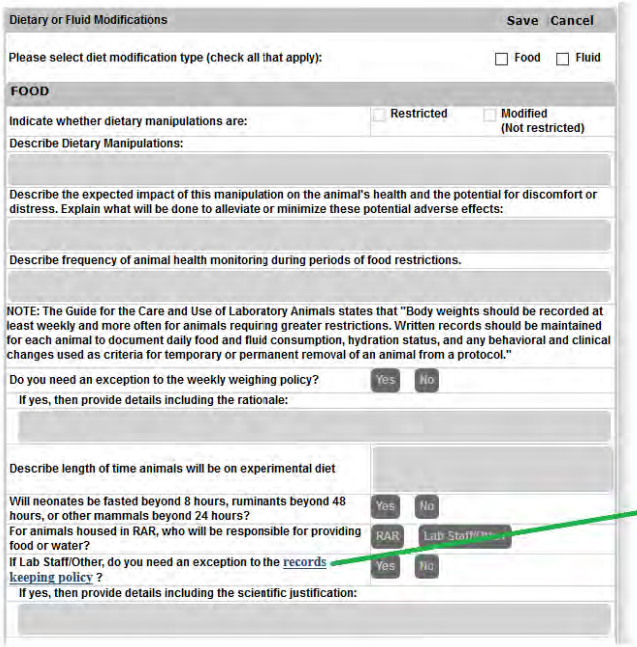
Changes for the Breeding Procedures Page

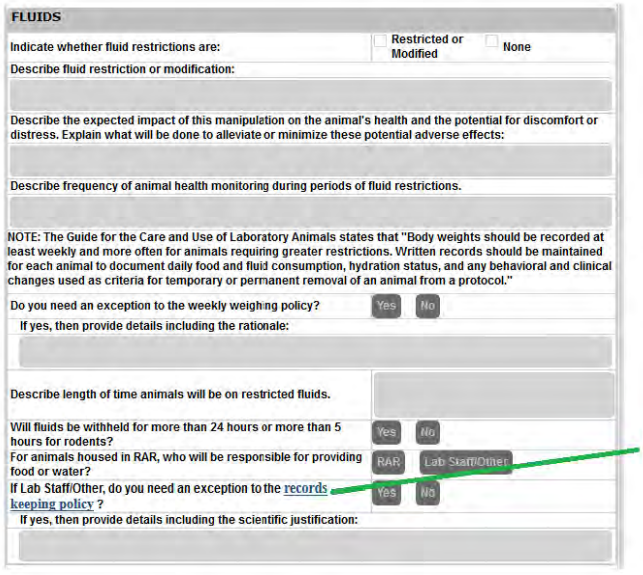
Remove the question: "Anticipated number of offspring that will be used for experiments:"

Methods of Animal Identification broken	Remove link
biopsy guidelines? broken	biopsy guidelines?
Remove Question: "What are the criteria for euthanasia of the Breeders?"	Include: Recommended criteria for euthanasia of mouse or rat breeders. • They produce no litter within 60 days of mating (longer may be acceptable if delayed breeding is a strain characteristic). • They produce no litter within 60 days of their last litter and are not visibly pregnant. • They produce litters but do not wean pups for two to three litters.
Remove Question: "Anticipated number of offspring that will be used for experiments:"	

Changes for the Dietary or Fluid Modifications Procedures Page

Under FOOD: "If Lab Staff/Other, do you need an exception to the records keeping policy ?" has a broken link. Update with link to the right	"If Lab Staff/Other, do you need an exception to the records keeping policy ?"
https://docs.google.com/document/d/165zyyuZVEG1TvWZyVHkm57ZJVcYImBxBdQf0npst4Mg/edit	
Under FLUIDS: "If Lab Staff/Other, do you need an exception to the records keeping policy ?" has a broken link. Update with link to the right	"If Lab Staff/Other, do you need an exception to the records keeping policy ?"
https://docs.google.com/document/d/165zyyuZVEG1TvWZyVHkm57ZJVcYImBxBdQf0npst4Mg/edit	





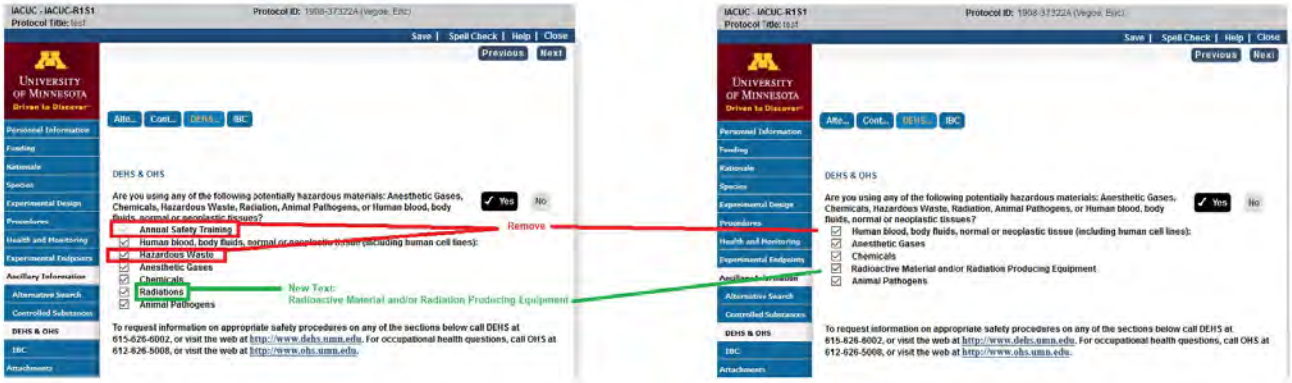
Changes for the Physical Restraint Procedures Page

"Complete if conscious animals will be physically restrained for more than one hour. To minimize distress or pain associated with restraint, the period of restraint should be no longer than required to achieve the aims of the project. IACUC Guideline on Physical Restraint." has a broken link. Update with link to the right	IACUC Guideline on Physical Restraint.
https://docs.google.com/document/d/1EO5YygfrGCnlBo1oR_GhSgCKLKxeJ0dxzAgZJ5pis-g/edit	

Changes for the DEHS Page

Checklist:

Remove the “Annual Safety Training” and “Hazardous Waste” checkboxes.
Change the text from “Radiations” to “Radioactive Material and/or Radiation Producing Equipment”



Chemicals Section: Changes are highlighted

Chemicals

[Text Mark-Up]

In the table below list any toxic or poisonous chemicals, carcinogens, chemotherapeutic agents and other hazardous drugs, reproductive hazards or nanomaterials used in this protocol. Also list compounds where the hazards have not been fully studied. Contact DEHS, 612-626-6002, ~~dehs@umn.edu~~ labsafe@umn.edu, if you have questions regarding what to include.

You must attach a ~~Standard Operating Protocol (SOP) and an Animal Husbandry form for each chemical listed in this section. Chemicals with the same hazard class that are being used in similar ways can be listed on the same SOP and Animal Husbandry form.~~ Toxic Hazard Class Standard Operating Procedure (SOP) that covers all the chemicals listed in this section. SOPs on file with DEHS may be used as long as they have been updated within the last 3 years.

A collection of resources, including step-by-step instructions, form templates, sample SOPs, and lists of chemicals that require SOPs can be found at: www.z.umn.edu/iacucresources

[New Text]

In the table below list any toxic or poisonous chemicals, carcinogens, chemotherapeutic agents and other hazardous drugs, reproductive hazards or nanomaterials used in this protocol. Also list compounds where the hazards have not been fully studied. Contact DEHS, 612-626-6002, labsafe@umn.edu, if you have questions regarding what to include.

You must attach a Toxic Hazard Class Standard Operating Procedure (SOP) that covers all the chemicals listed in this section. SOPs on file with DEHS may be used as long as they have been updated within the last 3 years.

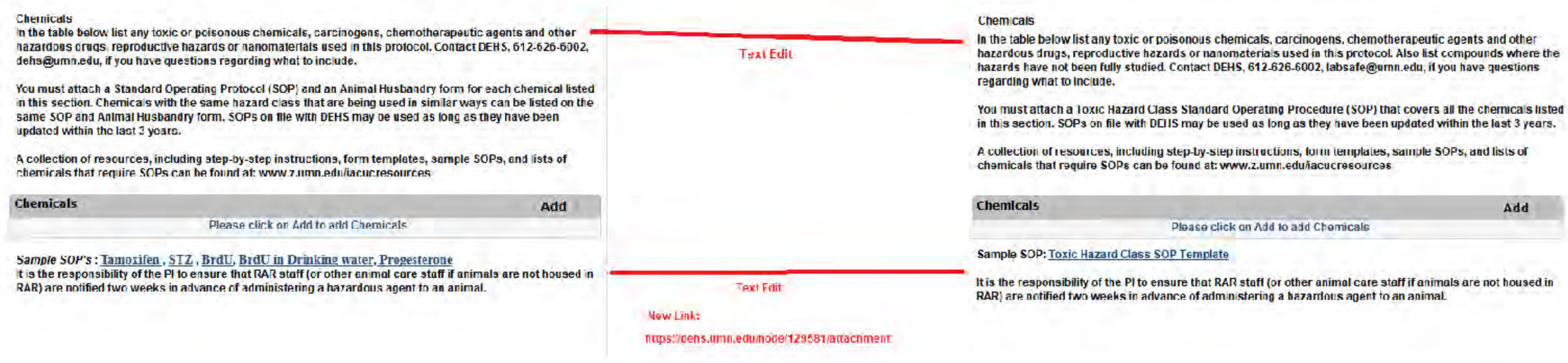
A collection of resources, including step-by-step instructions, form templates, sample SOPs, and lists of chemicals that require SOPs can be found at: www.z.umn.edu/iacucresources

[Text Mark-Up]

Sample SOP: Toxic Hazard Class SOP Template

~~Tamoxifen , STZ , BrdU, BrdU in Drinking water, Progesterone~~

It is the responsibility of the PI to ensure that RAR staff (or other animal care staff if animals are not housed in RAR) are notified two weeks in advance of administering a hazardous agent to an animal.



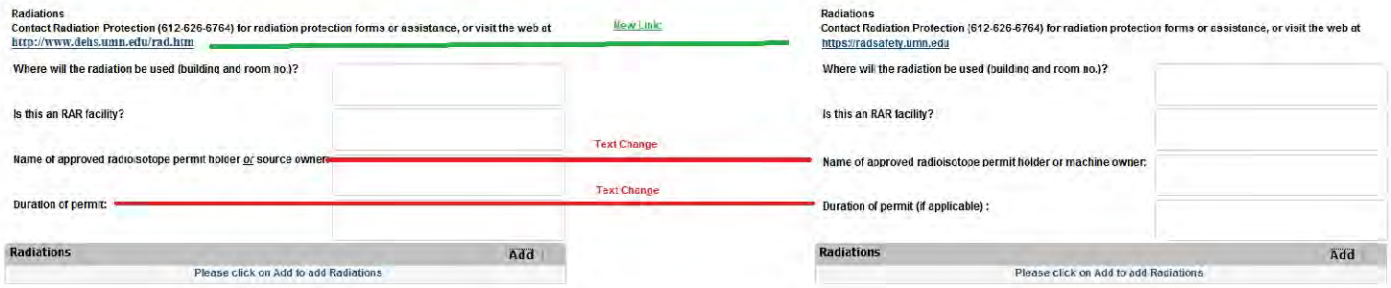
Radiation Section: Changes are highlighted
Radiations

Contact Radiation Protection (612-626-6764) for radiation protection forms or assistance, or visit the web at ~~http://www.dehs.umn.edu/rad.htm~~ https://radsafety.umn.edu/.

Where will the radiation be used (building and room no.)?
Is this an RAR facility?
Name of approved radioisotope permit holder or ~~source owner~~ machine owner:
Duration of permit (if applicable):

Controlled Substances Section: Changes are highlighted
Are you using Controlled Substances in this protocol? Yes No

Use of Controlled Substances requires DEHS Approval. ~~Please complete the controlled substances module for review and approval.~~ Please submit a separate controlled substances protocol in eProtocol if you haven't already done so or if your current one needs updating (over three years old, safe moved, registrant changed, added controlled substances).

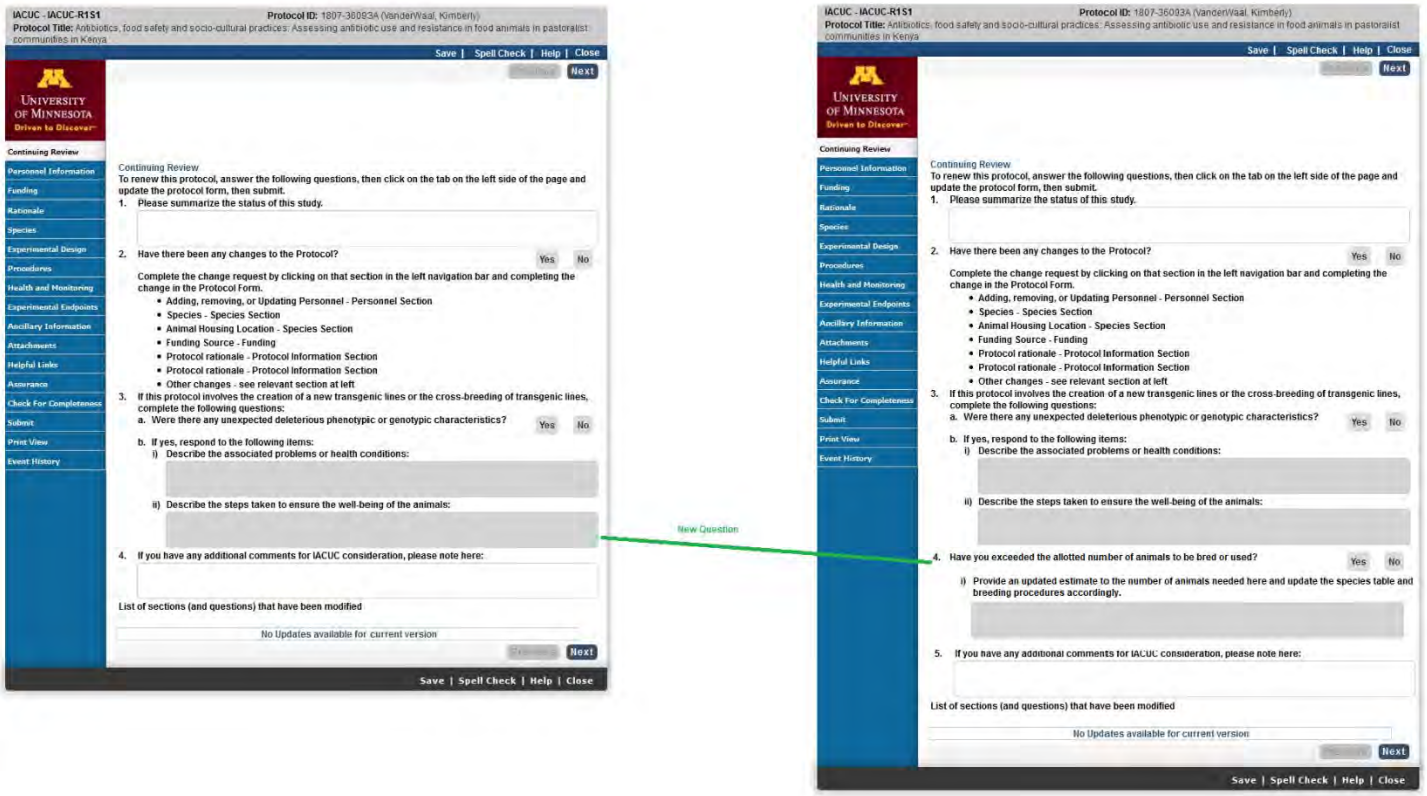


Changes for the Continuing Review Page

Update the continuing review page to include a question addressing breeding of animals beyond allotted amount

"Have you exceeded the allotted number of animals to be bred or used?

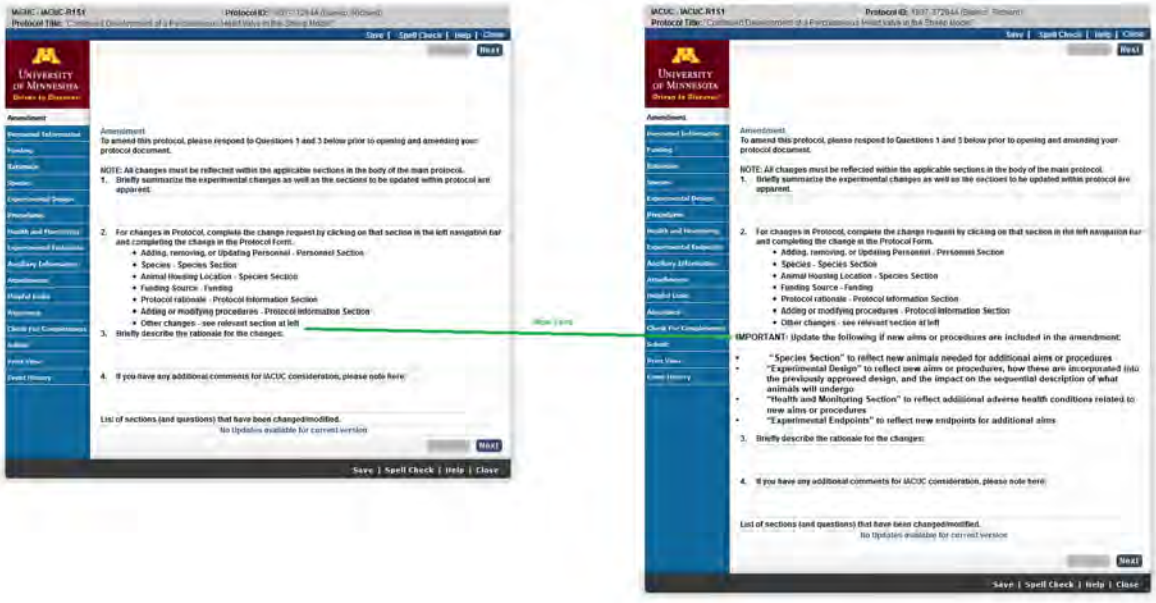
If so, provide an updated estimate to the number of animals needed here and update the species table and breeding procedures accordingly."



Changes for the Amendment Page

Update to include text reminding investigators to update the Species section to account for additional animals as needed; the Health and Monitoring Section to account for additional adverse health concerns associated with new procedures or aims; and the experimental endpoints section to account for new endpoints.

2. For changes in Protocol, complete the change request by clicking on that section in the left navigation bar and completing the change in the Protocol Form. •Adding, removing, or Updating Personnel - Personnel Section •Species - Species Section •Animal Housing Location - Species Section •Funding Source - Funding •Protocol rationale - Protocol Information Section •Adding or modifying procedures - Protocol Information Section •Other changes - see relevant section at left	To include after bullet points: *IMPORTANT: Update the following if new aims or procedures are included in the amendment:* • "**Species Section**" to reflect new animals needed for additional aims or procedures • **"Experimental Design**" to reflect new aims or procedures, how these are incorporated into the previously approved design, and the impact on the sequential description of what animals will undergo • **"Health and Monitoring Section"** to reflect additional adverse health conditions related to new aims or procedures • **"Experimental Endpoints"** to reflect new endpoints for additional aims



8. Pain classification

The committee discussed changing the pain classification to align with USDA categorization and voted to revise our current categorization. Previously the UMN IACUC implemented an A-C categorization rather than the USDA B-E categorization.

USDA Pain Categories	UMN Pain Categories
Class B- Animals being bred, conditioned, or held for use in teaching, testing, experiments,research, or surgery but not yet used for such purposes	**Class A**: No pain, distress or use of pain-relieving drugs.
Class C- Animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain-relieving drugs.	**Class B**: Potential pain/distress WITH appropriate analgesia/anesthesia/tranquilizers.
Class D- Animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	**Class C**: Pain/distress WITHOUT analgesia/anesthesia/tranquilizers.
Class E- Animals upon which teaching, experiments, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests.	

This change will require outreach to researchers in addition to updating eProtocol forms, so may not be completed in the next six month cycle.

The committee tabled discussion to standardize pain categories for the following common procedures that are often disputed regarding pain class.

- Infection models
- Food and water restriction
- Physical restraint
- Tumor studies
- Electro-fishing

9. DEHS SOPs and IACUC requirements for DEHS content

DEHS reminded the IACUC that their group is responsible for the SOPs of hazardous chemicals and works to maintain these documents. It is not necessary for PIs to include an attached SOP on all protocols as DEHS works directly with investigators on the content and maintenance of these documents. In the event that there is a chemical spill or questions about handling, DEHS should be contacted directly. DEHS would prefer that IACUC not make requests to the PI regarding these SOPs.

In the event that chemicals listed on a protocol are not included on the DEHS page, IACUC reviewers should provide a stipulation and the office will coordinate additional DEHS review.

10. Health and Monitoring section in the protocol: does frequency of monitoring include RAR and lab monitoring frequency combined?

RAR announced that they have refined their daily health check process for mice and rats with the goal of minimizing disruption of animals and potential impacts to your research. The daily health checks will now be comprised of a visual scan of each cage in a room. Cages will not be handled or opened unless concerns are identified during this visual scan. Animal health issues identified during health checks will still be managed according to our standard policies and procedures.

Propose updating the text in the Health and Monitoring section of the protocol to differentiate monitoring provided by RAR as a daily check and study based monitoring performed by the lab.

11. Pre-worded answers available to PIs for common procedures or treatments

Tabled until a future meeting

12. Veterinary pre-consult

Tabled until a future meeting

13. RAR training offered

Shannon May provided the committee with a presentation on RAR training courses provided and the registration process. RAR currently provides both required training and elective courses for researchers seeking hands-on experience or additional information and practice with common procedures. Required training is offered on a regular basis in multiple areas to facilitate timely completion of required modules.

Required Training

- RAR Orientation (required for all RAR facility users)
- Facility Tour (required for all RAR facility users)

- Microisolator Training (required for access to RAR SPF facilities)
- NHP Training (required for access to RAR NHP facilities or to work with NHP tissues)

Elective Training

- Mouse Basics
- Carbon Dioxide Euthanasia
- Mouse Injections (subcutaneous and intraperitoneal)
- Mouse Tail Vein Injections
- Mouse Blood Collection (saphenous and cardiac)
- Mouse Facial Vein Blood Collection
- Mouse Gavage
- Rat Handling and Injections
- Basics of Suturing
- Aseptic Technique in Rodents
- Anesthesia of Mice and Rats
- Rabbit Handling and Injections

In addition to these courses, specialized courses are available upon request.

See slides from the presentation located in the appendix for additional information.

14. Evaluation of the OLAW Checklist

The meeting attendees formed small groups to discuss different sections of the OLAW checklist which were then reviewed by the reconvened group. The committee determined that the Animal Use Program received a grade of "A" for all areas of the OLAW checklist except one deficiency that is currently being addressed. The committee also discussed potential ways that certain other areas could be improved to make the program stronger (see below).

Deficiency:

- Institutional Policies and Responsibilities, Animal Care and Use Program – *Resources necessary to manage program of veterinary care are provided.*
    - It was noted that RAR does not currently have access to imaging equipment and an i-STAT blood analyzer. OVPR has identified funding and RAR has ordered an i-STAT. RAR is also looking into access for imaging equipment that could potentially be shared with investigators.

Opportunities for Improvement:

- Institutional Policies and Responsibilities, Disaster Planning and Emergency Preparedness – *Law enforcement and emergency personnel are provided a copy and integration with overall plan is in place.*
    - The committee discussed whether outstate facilities had communicated the disaster plans to local security and law enforcement recently. Previously this was managed by the Attending Veterinarian through the institution's general emergency plans.
- Institutional Policies and Responsibilities, IACUC Protocol Review Special Considerations – *Toe clipping only performed when no alternative performed aseptically and with pain relief.*
    - Current posted guideline on the IACUC page specifies an age limit but does not list pain relief. Dr. Felicia Boynton has volunteered to look into this issue.
- Veterinary Care, Euthanasia – *Training is provided for appropriate methods for each species and considers psychological stress to personnel*
    - We will look into providing more training opportunities for staff that are experiencing psychological stress. Potentially a program is already offered through the veterinary school and the IACUC could share resources for support materials. This information could also be shared during inspections.

14. Sub-Groups for Evaluation of the OLAW Checklist

Group 1:
Institutional Policies and Responsibilities, Sections 1-4 ("Animal Care and Use Program", "Disaster Planning and Emergency Preparedness", "IACUC", and "IACUC Protocol Review - Special Considerations") (on pages 1-2)

Felicia Boynton
Paul Lindstrom
Megan McCoy
Mimie Pollard
Sam Baidoo
Jennifer Hubbard
Keith Barker
Georgiy Aslanidi
Jessica Sieber

Group 2:
Institutional Policies and Responsibilities Sections 5-8 ("IACUC Membership and Functions", "IACUC Training", " IACUC Records and Reporting Requirements", and "Veterinary Care") (on pages 2-3)

Ben Clark
Ilana Cohen
Scott Madill
Carolyn Fairbanks
Don Martin
Geoff Ghose
Laura Hocum-Stone
[redacted]
Jan Zimmerman

Group 3:
Institutional Policies and Responsibilities Sections 9-12 (, "Personnel Qualifications and Training", "Occupational Health and Safety of Personnel", "Personnel Security", and "Investigating & Reporting Animal Welfare Concerns") (on pages 3-5)

Brian Crooker
Peggy Norris
George Wilcox
Sally Noll
Henry Wong
Dan Montonye
Tricia Van Ee Molbert
Cynthia Lee
[redacted]

Group 4:
Veterinary Care sections 1-3 ("Clinical Care and Management", "Animal Procurement and Transportation/Preventive Medicine", and "Surgery") (on pages 6-7)

Nathan Koewler
Jennifer Borgert
Jim Perry
Dezhi Liao
Kakambi Nagaraja
Tim Goldsmith
[redacted]
Lynn Impelluso
Christine Sivula

Group 5:
Veterinary Care sections 4-6, ("Pain, Distress, Anesthesia and Analgesia", "Euthanasia", and "Drug Storage and Control") (on page 7)

Melanie Graham
Kristin Pilon
Liz Pluhar
Robert Schumacher
Marilyn Bennett
[redacted]
Maggie Luesse
Whitney McGee

I. Semiannual Program Review Checklist [i]

Institutional Policies and Responsibilities

Date:

1. Animal Care and Use Program NEW	A*	M	S	C	NA
• Responsibility for animal well-being is assumed by all members of the program (*Guide*, p 1) [must]	A				
• IO has authority to allocate needed resources (*Guide*, p 13)	A				
• Resources necessary to manage program of veterinary care are provided (*Guide*, p 14) [must]			S		
• Sufficient resources are available to manage the program, including training of personnel in accord with regulations and the *Guide* (*Guide*, pp 11, 15)	A				
• Program needs are regularly communicated to IO by AV and/or IACUC (*Guide*, p 13)	A				
• Responsibilities for daily animal care and facility management are assigned to specific individual(s) when a full-time veterinarian is not available on site (*Guide*, p 14) [must]	A				
• Inter-institutional collaborations are described in formal written agreements (*Guide*, p 15)	A				
• Written agreements address responsibilities, animal ownership, and IACUC oversight (*Guide*, p 15)	A				

2. Disaster Planning and Emergency Preparedness	A*	M	S	C	NA
• Disaster plans for each facility to include satellite locations are in place (*Guide*, p 35, p 75) [must]	A				
• Plans include provisions for euthanasia (*Guide*, p 35) [must]	A				
• Plans include triage plans to meet institutional and investigators' needs (*Guide*, p 35)	A				
• Plans define actions to prevent animal injury or death due to HVAC or other failures (*Guide*, p 35)	A				
• Plans describe preservation of critical or irreplaceable animals (*Guide*, p 35)	A				
• Plans include essential personnel and their training (*Guide*, p 35)	A				
• Animal facility plans are approved by the institution and incorporated into overall response plan (*Guide*, p 35)	A				
• Law enforcement and emergency personnel are provided a copy and integration with overall plan is in place (*Guide*, p 35)	A				

3. IACUC	A*	M	S	C	NA
• Meets as necessary to fulfill responsibilities (*Guide*, p 25) [must]	A				
• IACUC Members named in protocols or with conflicts recuse themselves from protocol decisions (*Guide*, p 26) [must]	A				
• Continuing IACUC oversight after initial protocol approval is in place (*Guide*, p 33)	A				
• IACUC evaluates the effectiveness of training programs (*Guide*, p 15)	A				

4. IACUC Protocol Review - Special Considerations	A*	M	S	C	NA
• Humane endpoints are established for studies that involve tumor models, infectious diseases, vaccine challenge, pain modeling, trauma, production of monoclonal antibodies, assessment of toxicologic effects, organ or system failure, and models of cardiovascular shock (*Guide*, p 27)	A				
• For pilot studies, a system to communicate with the IACUC is in place (*Guide*, p 28)	A				
• For genetically modified animals, enhanced monitoring and reporting is in place (*Guide*, p 28)	A				
• Restraint devices are justified in the animal use protocols (*Guide*, p 29) [must]	A				
• Alternatives to physical restraint are considered (*Guide*, p 29)	A				
• Period of restraint is the minimum to meet scientific objectives (*Guide*, p 29)	A				
• Training of animals to adapt to restraint is provided (*Guide*, p 29)	A				
• Animals that fail to adapt are removed from study (*Guide*, p 29)	A				
• Appropriate observation intervals of restrained animals are provided (*Guide*, p 29)	A				
• Veterinary care is provided if lesions or illness result from restraint (*Guide*, p 30) [must]	A				

• Explanations of purpose and duration of restraint are provided to study personnel (*Guide*, p 30)	A					
• Multiple surgical procedures on a single animal are justified and outcomes evaluated (*Guide*, p 30)	A					
• Major versus minor surgical procedures are evaluated on a case-by-case basis (*Guide*, p 30)	A					
• Multiple survival procedure justifications in non-regulated species conform to regulated species standards (*Guide*, p 30)	A					
• Animals on food/fluid restriction are monitored to ensure nutritional needs are met (*Guide*, p 31)	A					
• Body weights for food/fluid restricted animals are recorded at least weekly (*Guide*, p 31)	A					
• Daily written records are maintained for food/fluid restricted animals (*Guide*, p 31)	A					
• Pharmaceutical grade chemicals are used , when available, for animal-related procedures (*Guide*, p 31)	A					
• Non-pharmaceutical grade chemicals are described, justified, and approved by IACUC (*Guide*, p 31)	A					
• Investigators conducting field studies know zoonotic diseases, safety issues, laws and regulations applicable in study area (*Guide*, p 32)	A					
• Disposition plans are considered for species removed from the wild (*Guide*, p 32)	A					
• Toe-clipping only used when no alternative, performed aseptically and with pain relief (*Guide*, p 75)	A					

5. IACUC Membership and Functions	**A***	**M**	**S**	**C**	**NA**
• IACUC is comprised of at least 5 members, appointed by CEO (PHS Policy, IV.A.3.)	A				
• Members include a veterinarian, a scientist, a nonscientist, and a nonaffiliated non-lab animal user (*Guide*, p 24)[ii]	A				
• IACUC authority and resources for oversight and evaluation of institution's program are provided (*Guide*, p 14)	A				
• IACUC conducts semiannual evaluations of institutional animal care and use program (PHS Policy, IV.B.)	A				
• Conducts semiannual inspections of institutional animal facilities (PHS Policy, IV.B.)	A				
• IACUC organizationally reports to the Institutional Official (PHS Policy, IV.A.1.b.)	A				
• Methods for reporting and investigating animal welfare concerns are in place (*Guide*, p 23) [must]	A				
• Reviews and investigates concerns about animal care and use at institution[iii] (PHS Policy, IV.B.)	A				
• Procedures are in place for review, approval, and suspension of animal activities[iv] (PHS Policy, IV.B.)	A				
• Procedures are in place for review and approval of significant changes to approved activities (PHS Policy, IV.B.)	A				
• Policies are in place for special procedures (e.g., genetically modified animals, restraint, multiple survival surgery, food and fluid regulation, field investigations, agricultural animals) (*Guide*, p 27-32)	A				
• Requests for exemptions from major survival surgical procedure restrictions are made to USDA/APHIS[v] (*Guide*, p 30) [must]	A				

6. IACUC Training NEW	**A***	**M**	**S**	**C**	**NA**
• All IACUC members should receive:					
○ Formal orientation to institution's program (*Guide*, p 17)					
○ Training on legislation, regulations, guidelines, and policies (*Guide*, p 17)	A				
○ Training on how to inspect facilities and labs where animal use or housing occurs (*Guide*, p 17)	A				
○ Training on how to review protocols as well as evaluate the program (*Guide*, p 17)	A				
○ Ongoing training/education (*Guide*, p 17)	A				

7. IACUC Records and Reporting Requirements[vi]	**A***	**M**	**S**	**C**	**NA**
• Semiannual report to the IO (PHS Policy, IV.B.)					
○ Submitted to IO every 6 months	A				
○ Compiles program review and facility inspection(s) results (includes all program	A				

and facility deficiencies)						
○ Includes minority IACUC views	A					
○ Describes IACUC-approved departures from the *Guide* or PHS Policy and the reasons for each departure[vii]	A					
○ Distinguishes significant from minor deficiencies	A					
○ Includes a plan and schedule for correction for each deficiency identified[viii]	A					
• Reports to OLAW (PHS Policy, IV.F.)						
○ Annual report to OLAW documents program changes, dates of the semiannual program reviews and facility inspections and includes any minority views	A					
○ Promptly advises OLAW of serious/ongoing *Guide* deviations or PHS Policy noncompliance (NOT-OD-05-034)	A					
○ Institute must promptly advise OLAW of any suspension of an animal activity by the IACUC (NOT-OD-05-034)	A					
• Reports to U.S. Department of Agriculture (USDA) or Federal funding agency[ix]						
○ Annual report to USDA contains required information including all exceptions/exemptions	A					
○ Reporting mechanism to USDA is in place for IACUC-approved exceptions to the regulations and standards	A					
○ Reports are filed within 15 days for failures to adhere to timetable for correction of significant deficiencies	A					
○ Promptly reports suspensions of activities by the IACUC to USDA and any Federal funding agency	A					
• Records (PHS Policy, IV.E.)						
○ IACUC meeting minutes and semiannual reports to the IO are maintained for 3 years	A					
○ Records of IACUC reviews of animal activities include all required information[x]	A					
○ Records of IACUC reviews are maintained for 3 years after the completion of the study	A					

8. Veterinary Care (See also next section - Veterinary Care)	**A***	**M**	**S**	**C**	**NA**
• An arrangement for veterinarian(s) with training or experience in lab animal medicine is in place including backup veterinary care[xi]	A				
• Veterinary access to all animals is provided (*Guide*, p 14) [must]	A				
• Direct or delegated authority is given to the veterinarian to oversee all aspects of animal care and use (*Guide*, p 14) [must]	A				
• Veterinarian provides consultation when pain and distress exceeds anticipated level in protocol (*Guide*, p 5) [must]	A				
• Veterinarian provides consultation when interventional control is not possible (*Guide*, p 5) [must]	A				
• If part time /consulting veterinarian, visits meet programmatic needs (*Guide*, p 14)	A				
• Regular communication occurs between veterinarian and IACUC (*Guide*, p 14)	A				
• Veterinarian(s) have experience and training in species used (*Guide*, p 15) [must]	A				
• Veterinarian(s) have experience in facility administration/management (*Guide*, p 15)	A				

9. Personnel Qualifications and Training	**A***	**M**	**S**	**C**	**NA**
• All personnel are adequately educated, trained, and/or qualified in basic principles of laboratory animal science. Personnel included: [must]					
○ Veterinary/other professional staff (*Guide*, p 15-16)	A				
○ IACUC members (*Guide*, p 17)	A				
○ Animal care personnel (*Guide*, p 16)	A				
○ Research investigators, instructors, technicians, trainees, and students (*Guide*, pp 16-17)	A				
• Continuing education for program and research staff provided to ensure high quality care and reinforce training (*Guide*, pp 16-17)	A				
• Training is available prior to starting animal activity (*Guide*, p 17)	A				
• Training is documented (*Guide*, p 15)	A				
• Training program content includes: (*Guide*, p 17)					
○ Methods for reporting concerns (*Guide*, p 17)	A				
○ Humane practices of animal care (e.g., housing, husbandry, handling) [xii]	A				
○ Humane practices of animal use (e.g., research procedures, use of anesthesia,					

	pre- and post-operative care, aseptic surgical techniques and euthanasia (*Guide*, p 17)[xiii]	A				
○	Research/testing methods that minimize numbers necessary to obtain valid results (PHS Policy, IV.A.1.g.)	A				
○	Research/testing methods that minimize animal pain or distress (PHS Policy, IV.A.1.g.)	A				
○	Use of hazardous agents, including access to OSHA chemical hazard notices where applicable (*Guide*, p 20)	A				
○	Animal care and use legislation (*Guide*, p 17)	A				
○	IACUC function (*Guide*, p 17)	A				
○	Ethics of animal use and Three R's (*Guide*, p 17)	A				

10.	**Occupational Health and Safety of Personnel**	**A***	**M**	**S**	**C**	**NA**
•	Program is in place and is consistent with federal, state, and local regulations (*Guide*, p 17) [must]	A				
•	Program covers *all* personnel who work in laboratory animal facilities (*Guide*, p 18)	A				
•	Changing, washing, and showering facilities are available as appropriate (*Guide*, p 19)	A				
•	Hazardous facilities are separated from other areas and identified as limited access (*Guide*, p 19)	A				
•	Personnel training is provided based on risk (e.g., zoonoses, hazards, personal hygiene, special precautions, animal allergies) (*Guide*, p 20)	A				
•	Personal hygiene procedures are in place (e.g., work clothing, eating/drinking/smoking policies) (*Guide*, p 20)	A				
•	Procedures for use, storage, and disposal of hazardous biologic, chemical, and physical agents are in place (*Guide*, p 21)	A				
•	Personal Protective Equipment for the work area is appropriate and available (*Guide*, p 21)	A				
•	Program for medical evaluation and preventive medicine for personnel includes:					
○	Pre-employment evaluation including health history (*Guide*, p 22)	A				
○	Immunizations as appropriate (e.g., rabies, tetanus) and tests as appropriate (*Guide*, p 22)	A				
○	Zoonosis surveillance as appropriate (e.g., Q-fever, tularemia, Hantavirus, plague) (*Guide*, p 23)	A				
○	Procedures for reporting and treating injuries, including accidents, bites, allergies, etc. (*Guide*, p 23)	A				
○	Promotes early diagnosis of allergies including preexisting conditions (*Guide*, p 22)	A				
○	Considers confidentiality and other legal factors as required by federal, state and local regulations (*Guide*, p 22) [must]	A				
○	If serum samples are collected, the purpose is consistent with federal and state laws (*Guide*, p 22) [must]					NA
•	Waste anesthetic gases are scavenged (*Guide*, p 21)	A				
•	Hearing protection is provided in high noise areas (*Guide*, p 22)	A				
•	Respiratory protection is available when performing airborne particulate work (*Guide*, p 22)	A				
•	Special precautions for personnel who work with nonhuman primates, their tissues or body fluids include:					
○	Tuberculosis screening provided for all exposed personnel (*Guide*, p 23)	A				
○	Training and implementation of procedures for bites, scratches, or injuries associated with macaques (*Guide*, p 23)	A				
○	PPE is provided including gloves, arm protection, face masks, face shields, or goggles (*Guide*, p 21)	A				
○	Injuries associated with macaques are carefully evaluated and treatment implemented (*Guide*, p 23)	A				
•	Occupational safety and health of field studies is reviewed by OSH committee or office (*Guide*, p 32)	A				

11.	**Personnel Security** NEW	**A***	**M**	**S**	**C**	**NA**
•	Preventive measures in place include pre-employment screening, and physical and IT security (*Guide*, p 23)	A				

12. Investigating & Reporting Animal Welfare Concerns NEW	A*	M	S	C	NA
• Methods for investigating and reporting animal welfare concerns are established (*Guide*, p 23) [must]	A				
• Reported concerns and corrective actions are documented (*Guide*, p 24)	A				
• Mechanisms for reporting concerns are posted in facility and at applicable website with instructions (*Guide*, p 24)	A				
○ Includes multiple contacts (*Guide*, p 24)	A				
○ Includes anonymity, whistle blower policy, nondiscrimination and reprisal protection (*Guide*, p 24)	A				

* **A** = acceptable
M = minor deficiency
S = significant deficiency (is or may be a threat to animal health or safety)
C = change in program (PHS Policy IV.A.1.a.-i.) (include in semiannual report to IO and in annual report to OLAW)
NA = not applicable

NOTES:

Veterinary Care

Date:

1. Clinical Care and Management NEW	A*	M	S	C	NA
• Veterinary program offers high quality of care and ethical standards (*Guide*, p 105) [must]	A				
• Veterinarian provides guidance to all personnel to ensure appropriate husbandry, handling, treatment, anesthesia, analgesia, and euthanasia (*Guide*, p 106)	A				
• Veterinarian provides oversight to surgery and perioperative care (*Guide*, p 106)	A				
• Veterinary care program is appropriate for program requirements (*Guide*, pp 113-114)	A				
• Veterinarian(s) is familiar with species and use of animals and has access to medical and experimental treatment records (*Guide*, p 114)	A				
• Procedures to triage and prioritize incident reports are in place (*Guide*, p 114)	A				
• Procedures are in place to address:					
○ Problems with experiments to determine course of treatment in consultation with investigator(*Guide*, p 114)	A				
○ Recurrent or significant health problems with the IACUC and documentation of treatments and outcomes (*Guide*, p 114)	A				
○ Veterinary review and oversight of medical and animal use records (*Guide*, p 115)	A				
• Procedures established for timely reporting of animal injury, illness, or disease (*Guide*, p 114) [must]	A				
• Procedures established for veterinary assessment, treatment, or euthanasia (*Guide*, p 114) [must]	A				
• Veterinarian is authorized to treat, relieve pain, and/or euthanize (*Guide*, p 114) [must]	A				

2. Animal Procurement and Transportation/Preventive Medicine	A*	M	S	C	NA
• Procedures for lawful animal procurement are in place (*Guide*, p 106) [must]	A				
• Sufficient facilities and expertise are confirmed prior to procurement (*Guide*, p 106)	A				
• Procurement is linked to IACUC review and approval (*Guide*, p 106)	A				
• Random source dogs and cats are inspected for identification (*Guide*, p 106)					NA
• Population status of wildlife species is considered prior to procurement (*Guide*, p 106)	A				
• Appropriate records are maintained on animal acquisition (*Guide*, p 106)	A				
• Animal vendors are evaluated to meet program needs and quality (*Guide*, p 106)	A				
• Breeding colonies are based on need and managed to minimize numbers (*Guide*, p 107)	A				
• Procedures for compliance with animal transportation regulations, including international requirements, are in place (*Guide*, p 107) [must]	A				
• Transportation is planned to ensure safety, security and minimize risk (*Guide*, p 107)	A				
• Movement of animals is planned to minimize transit time and deliveries are planned to ensure receiving personnel are available (*Guide*, pp 107-108)	A				
• Appropriate loading and unloading facilities are available (*Guide*, p 109)	A				
• Environment at receiving site is appropriate (*Guide*, p 109)	A				
• Policies in place on separation by species, source, and health status (*Guide*, pp 109, 111-112)	A				
• Procedures in place for quarantine to include zoonoses prevention (*Guide*, p 110)	A				
• Quarantined animals from different shipments are handled separately or physically separated (*Guide*, p 110)	A				
• Procedures in place for stabilization/acclimation (*Guide*, pp 110-111)	A				
• Policies in place for isolation of sick animals (*Guide*, p 112)	A				
• Program is in place for surveillance, diagnosis, treatment and control of disease to include daily observation (*Guide*, p 112)	A				
• Diagnostic resources are available for preventive health program (*Guide*, p 112)	A				

3. Surgery	A*	M	S	C	NA
• Surgical outcomes are assessed and corrective changes instituted (*Guide*, p 115)	A				
• Researchers have appropriate training to ensure good technique (*Guide*, p 115) [must]	A				

• Pre-surgical plans are developed and include veterinary input (e.g., location, supplies, anesthetic and analgesic use, peri-operative care, recordkeeping) (*Guide*, p 116)	A					
• Aseptic surgery is conducted in dedicated facilities or spaces, unless exception justified and IACUC approved (*Guide*, p 116)	A					
• Surgical procedures including laparoscopic procedures are categorized as major or minor (*Guide*, pp 117-118)	A					
• For nonsurvival surgery, the site is clipped, gloves are worn and instruments and area are clean (*Guide*, p 118)	A					
• Aseptic technique is followed for survival surgical procedures (*Guide*, pp 118-119)	A					
• Effective procedures for sterilizing instruments and monitoring expiration dates on sterile packs are in place (*Guide*, p 119)	A					
• Procedures for monitoring surgical anesthesia and analgesia are in place (*Guide*, p 119)	A					
• For aquatic species, skin surfaces are kept moist during surgical procedures (*Guide*, p 119)	A					
• Post-operative monitoring and care are provided by trained personnel and documented (e.g., thermoregulation, physiologic function, analgesia, infection, removal of skin closures) (*Guide*, pp 119-120)	A					

4. Pain, Distress, Anesthesia and Analgesia	**A***	**M**	**S**	**C**	**NA**
• Guidelines for assessment and categorization of pain, distress and animal wellbeing are provided during training (*Guide*, p 121)	A				
• Selection of analgesics and anesthetics is based on professional veterinary judgment (*Guide*, p 121)	A				
• Painful procedures are monitored to ensure appropriate analgesic management (*Guide*, p 122)	A				
• Nonpharmacologic control of pain is considered as an element of postprocedural care (*Guide*, p 122)	A				
• Procedures are in place to assure antinoception before surgery begins (*Guide*, p 122) [must]	A				
• Guidelines for selection and use of analgesics and anesthetics are in place and regularly reviewed and updated (*Guide*, p 122)	A				
• Special precautions for the use of paralytics are in place to ensure anesthesia[xiv] (*Guide*, p 123)	A				

5. Euthanasia	**A***	**M**	**S**	**C**	**NA**
• Methods are consistent with AVMA Guidelines on Euthanasia unless approved by the IACUC (*Guide*, p 123)	A				
• Standardized methods are developed and approved by the veterinarian and IACUC that avoid distress and consider animal age and species (*Guide*, pp 123-124)	A				
• Training is provided on appropriate methods for each species and considers psychological stress to personnel (*Guide*, p 124)	A				
• Procedures and training are in place to ensure death is confirmed (*Guide*, p 124) [must]	A				

6. Drug Storage and Control NEW	**A***	**M**	**S**	**C**	**NA**
• Program complies with federal regulations for human and veterinary drugs(*Guide*, p 115) [must]	A				
• Drug records and storage procedures are reviewed during facility inspections (*Guide*, p 115)	A				
• Procedures are in place to ensure analgesics and anesthetics are used within expiration date (*Guide*, p 122) [must]	A				
• Anesthetics and analgesics are acquired, stored, and their use and disposal are recorded legally and safely (*Guide*, p 122)	A				

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M = minor deficiency
S = significant deficiency (is or may be a threat to animal health or safety)
C = change in program (PHS Policy IV.A.1.a.-i.) (include in semiannual report to IO and in annual report to OLAW)
NA = not applicable

NOTES:

Appendices

a) RAR Training Presentation Slides (pg 45-48)
b) Inspection Dates (pg 49-51)
c) IMHA List and Justifications (pg 52-82)
d) Reduced PAM (pg 83-88)
e) Complete Inspection Report Summary (pg 89-165)
f) Approved Protocol Exceptions (pg 166-294)
g) Administrative Summary and Graphs (pg 295-312)
h) Expired and Holding Protocol Summary (pg 313)
i) Repeat Significant Findings (pg 314-318)

RAR Training Courses and Registration Process

Shannon May, CVT, RLAT – Research Animal Resources

Tuesday, 10/22/19

UNIVERSITY OF MINNESOTA
Driven to Discover®

Overview

- RAR Training Courses
  - Required Training
  - Elective Training
- Registration Process
- Training Schedule

RAR Training Courses

Required Training

- Training required to receive access to RAR animal facilities

Elective Training

- Technical training offered to research staff
  - Hands-on animal training

Required Training

- **RAR Orientation**
  - Required for all RAR animal facility users
- **Facility Tour(s)**
  - Required for all RAR animal facility users
- **Microisolator Training**
  - Required for access to RAR SPF facilities
- **NHP Training**
  - Required for access to NHP facilities or for lab personnel working with NHP tissues

Required Training: Registration Process

- Initial RAR Clearance and Facility Access form**
  - Email: rartrain@umn.edu
- Registers research staff for RAR Orientation
- **Online form in development

Required Training: Registration Process

Orientation	Facility Tour(s)	Microisolator Training	NHP Training
•Research staff receive an email from rartrain@umn.edu with instructions and a link to complete RAR Orientation online. •RAR monitors completion of Orientation via Canvas ○A score of 100% is required on the quiz to successfully complete RAR Orientation.	•After completion of RAR Orientation, research staff receive an email from rartrain@umn.edu to schedule facility tour(s). •*NHP research staff have additional requirements before proceeding with the facility tour.	•After completion of RAR Orientation, research staff receive an email from rartrain@umn.edu to schedule microisolator training, if applicable.	•After completion of Orientation, research staff receive an email from rartrain@umn.edu with instructions and a link to complete RAR's NHP Training. •RAR monitors completion of NHP Training via Canvas ○A score of 100% is required on the quiz to successfully complete NHP Training. •*After completion of RAR Orientation, NHP Training and TB surveillance (ROHP), research staff receive an email from rartrain@umn.edu to schedule facility tour(s).

Required Training: Schedule

- **RAR Orientation**
  - Online
- **Facility Tours**
  - [redacted] area: every Monday at 10 am or by appointment
  - [redacted] area: every Wednesday at 10 am or by appointment
  - St Paul campus: by appointment
- **Microisolator Training**
  - [redacted] area: every Monday at 11 am or by appointment
  - [redacted] area: every Wednesday at 11 am or by appointment
  - St Paul campus: every Tuesday at 9 am or by appointment
- **NHP Training**
  - Online
  - Facility tours: scheduled by appointment

Elective Training

- 12 defined courses
  - Mouse Basics** (includes CO2 euthanasia training)
  - CO2 euthanasia
  - Mouse Injections
    - subcutaneous
    - intraperitoneal
  - Mouse Tail Vein Injections
  - Mouse Blood Collection
    - saphenous (survival)
    - cardiac (terminal)
  - Mouse Facial Vein Blood Collection
  - Mouse Gavage
  - Rat Handling and Injections
  - Basics of Suturing
  - Aseptic Technique in Rodents
  - Anesthesia of Mice and Rats
  - Rabbit Handling and Injections
- Custom courses by request

**Prerequisite

Elective Training: Registration Process

- RAR Training Registration Form**
  - Email: rartrain@umn.edu
- Online form in development**
- Most courses are free to research staff on an IACUC protocol.
  - $30 class fee applies to:
    - Aseptic Technique in Rodents
    - Anesthesia of Mice and Rats
    - Basics of Suturing
- A no show will incur a fee of $30


Request for RAR Training

Elective Training: Schedule

- Elective training courses offered in all RAR areas
  - [redacted]
  - [redacted] area
  - St Paul campus
- Online Training Calendar
  - recurring monthly schedule
- RAR-TALK email announcement
- By request

Questions?

UNIVERSITY OF MINNESOTA
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Facility Name	Facility Code	Spring 2019	Fall 2019
[redacted]	1	1/17/2019	7/18/2019
	1	1/9/2019	7/15/2019
	1	10/10/2018	4/19/2019
	1	1/17/2019	7/18/2019
	2	1/9/2019	7/15/2019
	2	1/9/2019	7/15/2019
	3	1/17/2019	7/18/2019
	4	1/22/2019	7/31/2019
	5	3/6/2019	9/17/2019
	6	12/14/2018	6/25/2019
	7	2/5/2019	7/31/2019
	8	12/17/2018	6/24/2019
	10	10/10/2018	4/23/2019
	10	10/30/2018	4/23/2019
	10	10/30/2018	4/10/2019
	10	10/30/2018	4/10/2019
	10	10/30/2018	4/10/2019
	10	11/29/2018	5/22/2019
	10	3/29/2019	9/27/2019
	12	11/19/2018	5/17/2019
	12	12/21/2018	6/21/2019
			5/17/2019
[redacted]	12	3/18/2019	9/25/2019
	12	3/25/2019	9/23/2019
	12	3/13/2019	9/26/2019
	12	Not applicable	Not applicable
	13	10/15/2018	4/25/2019
	14	2/18/2019	8/6/2019
	15	3/28/2019	9/18/2019
	16	11/28/2018	5/15/2019
	17	1/8/2019	7/24/2019
	18	12/13/2018	6/6/2019
	19	10/29/2018	4/29/2019
	20	Not applicable	8/19/2019
	21	1/14/2019	7/26/2019
	22	3/26/2019	9/25/2019
	22	3/5/2019	9/30/2019
IMHA Areas:			
[redacted]		Not applicable	

[redacted]	2/21/2019	8/6/2019
	3/19/2019	9/30/2019
	1/22/2019	7/26/2019
	3/6/2019	9/10/2019
	Not applicable	9/26/2019
	Not applicable	Not applicable
	Not applicable	Not applicable
	Not applicable	Not applicable
	Not applicable	6/19/2019
	3/21/2019	9/20/2019
	2/19/2019	8/15/2019
	10/25/2018	Not applicable
	12/13/2018	6/6/2019
	2/15/2019	8/16/2019
	2/4/2019	8/16/2019
	Not applicable	Not applicable
	Not applicable	Not applicable
	2/18/2019	Not applicable
	Not applicable	Not applicable
	Not applicable	Not applicable
	Not applicable	Not applicable
	Not applicable	
	Not applicable	Not applicable
	2/8/2019	8/7/2019
	3/1/2019	8/7/2019
	3/7/2019	9/24/2019
	Not applicable	Not applicable
	Not applicable	Not applicable
	11/26/2018	5/20/2019
	11/1/2018	5/17/2019
	Not applicable	Not applicable
	Not applicable	Not applicable
	Not applicable	Not applicable
	Not applicable	Not applicable
	3/26/2019	9/6/2019
	12/21/2018	6/21/2019
	1/2/2019	6/24/2019
	1/2/2019	6/24/2019
	1/25/2019	Not applicable
	Not applicable	Not applicable
	10/16/2018	4/30/2019
	2/25/2019	8/13/2019

[redacted]

	11/2/2018	5/2/2019
	2/28/2019	8/20/2019
	2/19/2019	8/15/2019
	12/11/2018	6/20/2019
	11/27/2018	5/7/2019
	3/26/2019	9/27/2019
	3/27/2019	9/19/2019
	3/27/2019	9/19/2019
	Not applicable	Not applicable
	12/21/2018	6/17/2019
	2/15/2019	8/29/2019
	Not applicable	8/22/2019
	3/13/2019	9/17/2019
	3/18/2019	Not applicable
	Not applicable	8/22/2019
	2/21/2019	8/20/2019
	3/20/2019	9/11/2019
AG Sites:		
	3/20/2019	9/11/2019
	10/29/2018	4/17/2019
	10/29/2018	4/17/2019
	12/6/2018	5/31/2019
	12/6/2018	5/31/2019
	11/15/2018	5/30/2019
	11/26/2018	5/10/2019
	11/26/2018	5/10/2019
	12/14/2018	6/21/2019
	12/14/2018	6/25/2019
	12/11/2018	6/25/2019
	N/A	6/21/2019
	12/11/2018	6/21/2019

[redacted]

Investigator	Species	Building	Room number	Protocol Number	Justification
Alejandro, Emilyn	mouse	[redacted]	[redacted]	1806-36072A	We need special housing for this mice that is only available in IBP Phenotyping core in CCRB [redacted]
Aliota, Matthew	mouse	V[redacted]g	[redacted]	1804-35828A	The experiments to be performed are to be done at [redacted]
Bajer, Przemyslaw	fish		***	1906-37131A	Protocol has not yet been submitted
Bartolomucci, Alessandro	mouse		[redacted]	1701-34522A, 1706-34930A, 1711-35305A	Our studies involve continuous monitoring of mice metabolic functions including daily food intake and body weight monitor as well as weekly body composition and indirect calorimetry analysis. Data acquisition systems are extremely expensive and therefore must be in a secured area. Also, it is absolutely crucial to our research that the animals are monitored in an experimentally controlled environment and that we are able to directly monitor the animals at all times.

Barrell, Emily	horse	[redacted]	***	1905-37027A	Horses are housed in the [redacted] Barn presently as there is no RAR housing available; they will continue to be housed in this barn for the duration of the study.
Baughn, Anthony	mouse		[redacted]	1810-36444A	Mice will be infected with Mycobacterium tuberculosis, a bacterium that is classified as a Risk Group 3 pathogen due to its high infectivity and transmission via the respiratory route. According to the Biosafety in Microbiological and Biomedical Laboratories 5th ed (CDC), mice infected with M. tuberculosis do not pose an aerosol infection risk and can be maintained under [redacted]. However, the initial infection procedure and processing of infected mice does present a significant aerosol exposure risk and must be conducted inside the [redacted]. Standard operating procedures for work in the [redacted] and caging equipment used for housing the infected animals are designed to reduce the risk of personnel exposure to infectious organisms during husbandry.
Bee, Mark	frogs		[redacted]	1701-34456A	The main reasons for the long term housing of frogs in this room are the following: A major reason for housing these **animals outside of RAR managed facilities concerns the time of** day that the animals are used. It is likely that some tests will be conducted at night (e.g., between midnight and 4am) when these frogs are naturally most active. It has been our experience that frogs are often more responsive when tested at night. Second, it is important for our experiments that we maintain some control over the acoustic environment in which the frogs are kept. We may wish to broadcast recordings of natural frog choruses at night in the animal room to acoustically simulate the situation in which females are in natural breeding chorus.

Bee, Mark	frogs	[redacted]	[redacted]	1701-34456A	The main reasons for the long term housing of frogs in this room are the following: A major reason for housing these animals outside of RAR managed facilities concerns the time of day that the animals are used. It is likely that some tests will be conducted at night (e.g., between midnight and 4am) when these frogs are naturally most active. It has been our experience that frogs are often more responsive when tested at night. Second, it is important for our experiments that we maintain some control over the acoustic environment in which the frogs are kept. We may wish to broadcast recordings of natural frog choruses at night in the animal room to acoustically simulate the situation in which females are in natural breeding chorus.
Belcher, John	mice		[redacted]	1712-35371A	Mice are implanted with dorsal skin fold chambers in IMHA and then kept warm in humidified 32 degree C incubators in IMHA to minimize body heat loss via the implanted chamber. Three days later, microvascular stasis is meausured using specialized intravital microscopy equipment in the same IMHA.
Benneyworth, Michael	mice		[redacted]	1711-35294A	Our lab studies the effects of environmental experience on brain function and behavior. Our recent studies have shown that even mild stress (handling, injections and/or novelty exposure) can have significant impact on our outcome measures. The IMHA will enable us to minimize unwanted stress and control out animals' environment to reduce variability in our data
Benneyworth, Michael	mice		[redacted]	1711-35294A	Our lab studies the effects of environmental experience on brain function and behavior. Our recent studies have shown that even mild stress (handling, injections and/or novelty exposure) can have significant impact on our outcome measures. The IMHA will enable us to minimize unwanted stress and control out animals' environment to reduce variability in our data

Bianco, Richard	sheep, pigs	[redacted]	pasture and barn	1610-34277A, 1703-34665A, 1704-34726A, 1705-34789A, 1707-34942A, 1710-35219A, 1711-35350A, 1802-35610A, 1804-35772A, 1804-35780A, 1806-36011A, 1807-36201A, 1808-36237A, 1810-36420A, 1903-36852A, 1905-37042A, 1905-37103A, 1907-37284A	Long term survival animals are provided a natural environment at [redacted] This facility is capable of providing housing with pasture and appropriate shelter for large number of farm animals. This facility also has a veterinary technician living on the grounds. The technician is capable of blood draws, treatment, observing and assessing clinical health and is GLP competent and maintains the facility under AAALAC and GLP compliancy. Transportation is provided on short notice and during off hours. The facility does provide an excellent enriched environment for the test animals. In order to maintain the quality and scientific integrity of this study as well as to generate a reliable model for future studies, we are required to follow the regulations set by FDA under 21CFR part 58.
Bischof, John	mice		[redacted]	1701-34516A	We received IACUC approval for housing SPF mice in our animal surgery room located in [redacted] in early 2002 and have continuously housed animals for this study there since then. In brief, the equipment needed for this project is required by other personnel in the lab at various times and cannot be moved to an RAR area.
Bischof, John	fish embryos		[redacted]	1804-35844A	Fish embryos will be considered vertebrates after they reach Day 3. They will be housed in [redacted] from Day 3 to Day 5 for observation. After which any surviving fish will be transferred to the zebrafish core and housed in tanks and grown out til three months. We will attempt the fish to spawn and evaluate the health of the embryos (non-vertebrates). After which the adult parent fish will be euthanized. The cryopreservation and observation procedures can be handled in NHH whereas the housing & care of fish post day 5 can be taken care in the zebrafish core. The zebrafish core has experts and an approved protocol for this procedure (#1506-32642A)

Bischof, John	zebrafish embryos	[redacted]	[redacted]	1804-35844A	Fish embryos will be considered vertebrates after they reach Day 3. They will be housed in [redacted] from Day 3 to Day 5 for observation. After which any surviving fish will be transferred to the zebrafish core and housed in tanks and grown out til three months. We will attempt the fish to spawn and evaluate the health of the embryos (non-vertebrates). After which the adult parent fish will be euthanized. The cryopreservation and observation procedures can be handled in [redacted] whereas the housing & care of fish post day 5 can be taken care in the **zebrafish core. The zebrafish core has experts and an approved** protocol for this procedure (#1506-32642A)
Bitterman, Peter	fish		[redacted]	1801-35483A	Zebrafish research facility, [redacted] (IMHA) is used only for egg/embryo production
Boe, Gail	fish, birds		***	1806-36052A	For display at UMM
Bold, Tyler	mouse		[redacted]	1812-36571A	Mice will be infected with Mycobacterium tuberculosis, a bacterium that is classified as a [redacted] due to its high infectivity and transmission via the respiratory route. Mice infected with M. tuberculosis may release infectious bacteria to the air. Therefore, infected mice must be housed inside the [redacted] to contain the highly infectious organisms. Standard operating procedures for work in the [redacted] and caging equipment used for housing the infected animals are designed to reduce the risk of personnel exposure to infectious organisms during husbandry.
Chen, Xiaoli	mouse		[redacted]	1801-35539A	Our studies involve continuous monitoring of mice metabolic functions including daily food intake and body weight monitor as well as weekly body composition and indirect calorimetry analysis. Data acquisition systems are extremely expensive and therefore must e in a secured area. Also, it is absolutely **crucial to our research that the monitored in an experimentally** controlled environment and that we are able to directly monitor the animals at all times.

Chen, Xiaoli	mouse	[redacted]	***	1801-35539A	Our studies involve continuous monitoring of mice metabolic functions including daily food intake and body weight monitor as well as weekly body composition and indirect calorimetry analysis. Data acquisition systems are extremely expensive and therefore must e in a secured area. Also, it is absolutely crucial to our research that the monitored in an experimentally controlled environment and that we are able to directly monitor the animals at all times.
Chen, Clark	mouse		[redacted]	1802-35597A	Also, for [redacted] we request IMHA for up to 72 hours postop housing of animals undergoing survival surgeries. As described in the text, following a survival surgery the animal is placed in a clean cage in room [redacted] The purpose of this is to facilitate the post-operative evaluation and special care of the mice with implants.
Collister, John	rats		[redacted]	1612-34405A, 1810-36452A	The required equipment using in recording blood pressure and heart rate is located in room [redacted]
Cvetanovic, Marija	mouse		[redacted]	1810-36435A	Behavioral test done by behavioral core. Recent studies have shown that even mild stress (handling, injections, and/or novelty exposure) can have significant impact on our outcome measures. The IMHA will enable us to minimize unwanted stress (e.g., transport from housing colony to lab) and control our animals' environment to reduce variability in our data
Cvetanovic, Marija	guinea pigs, frog, rat, mouse		[redacted]	1703-34631A	the proposed animals will be used for a teaching lab taught at the Itasca Biological Research Station at Lake Itasca State Park. This is sufficiently far from the Twin Cities that central RAR housing would not be possible
Denton, Robert	salamanders		[redacted]	1901-36686A	This secured cold room provides controlled conditions necessary to keep the salamanders at a cool temperature.

Desrosiers, Mark	turtle	[redacted]	[redacted]	1810-36465A	There are no turtle housing facilities in Research Animal Resources, and this is a display animal in the libraries
Dudley, Samuel	mouse		[redacted]	1703-34647A, 1704-34710A	Use of telemetry system
Dougherty, Brendan	rat		[redacted]	1704-34724A	Rats receiving experimental spinal cord injuries receive specific post-op care and monitoring to ensure appropriate recovery. We have found this to be best handled within the laboratory environment by trained staff with access to specific equipment and drugs for the first 24-72 hours.
Ebner, Timothy	mouse		[redacted]	1803-35638A, 1808-36330A	We request IMHA for up to 72 hours postop housing of animals undergoing survival surgeries. As described in the text, following a survival surgery the animal is placed in a clean cage and the cage placed in the fume hood in room [redacted]. The purpose of this is to facilitate the post-operative evaluation and special care of the mice with implants.
Engeland, William	mouse		[redacted]	1710-35244A	There are two reasons for housing mice in the [redacted]. First it enhances our ability to optimally perform chronic subordinate stress experiments, since the IMHA is the facility being used by our collaborators, Drs. A. Bartolomucci and M. Razzoli who have the experience required to effectively complete these experiments. Secondly, the current housing space in [redacted] is not adequate; there is insufficient space for the cages required for the subordinate stress and more importantly, my collaborators emphasize the importance of minimizing exposure of mice not involved in the experiment to mice undergoing daily bouts of dominant subordinate interactions. Since we house and breed mice for other experiments [redacted] this space is not available for the subordinate stress experiments

Ervasti, James	mouse	[redacted]	[redacted]	1806-36018A	Our studies involve continuous monitoring of mouse metabolic functions including body composition and indirect calorimetry analysis. Data acquisition systems are extremely expensive and therefore must be in a secured area. Also, it is absolutely crucial to our research that the animals are monitored in an experimentally controlled environment and that we are able to monitor the animals at all times.
Fallon, Ann	hamsters		[redacted]	1902-36743A	Blood-feeding arthropods cannot be transported to another building to be provided a blood meal.
Ferrington, Deborah	mice		[redacted]	1704-34752A	Rooms listed is where we have a hood set up to perform light stress experiments. These experiments require stringent control of the amount and timing of light so need to be performed outside the normal RAR facility where a 12/12 cycle of light and dark is maintained.
Firshman, Anna	Horse		***	1708-35084A	**No Justification provided**
Garry, Mary	pigs		[redacted]	1905-37039A	Young piglets require very close attention and specialized care. This level of care is provided by laboratory personnel.
Garry, Mary	pigs		[redacted]	1806-36050A	Young piglets require very close attention and specialized care. This level of care is provided by laboratory personnel.
Gewirtz, Jonathan	mouse		[redacted]	1609-34140A	Animals are to be transported to [redacted] for surgical procedures and behavioral experiments that are unavailable within [redacted]. Because the current housing is 'conventional', mice must be transported directly to the IMHA (a conventional space).

[redacted]	NHP, mouse, rat	[redacted]	[redacted]	1706-34873A, 1706-34898A, 1706-34903A, 1707-34995A, 1708-35062A, 1805-35937A, 1806-35989A, 1806-36065A, 1808-36291A, 1810-36463A, 1902-36813A, 1902-36830A, 1903-36845A, 1904-36948A, 1905-37026A	We have modified husbandry practices to be optimal for NHP and rodents used in complex disease models. This IMHA is capable of exceeding minimum expectations o the guide to provide our animals with varied enrichment, careful husbandry scheduling accommodating the highest level of care and complex environments/interactions that provide the best opportunity for expression of behaviors that represent the species typical repertoire.
Gregerson, Dale	mouse		[redacted]	1706-34882A	Maintenance of a specific, bright light environment continuously for up to 4 days can not be accommodated in RAR mouse rooms.
Griffith, Thomas	mouse		[redacted]	1906-37113A	We are conducting a study that requires mice to be housed in a [redacted]) that cannot be serviced by RAR personnel. Therefore, it is necessary to obtain clearance for the self management and maintenance of our mice housed in this [redacted]
Hackel, Benjamin	mice		[redacted]	1710-35191A	Mice will be injected IV with 64Cu-labeled proteins. Housing in [redacted] enables them to be kept in a remote, shielded location while radioactivity is present. This radioisotope has a 12.7 hour half life. Mice will be housed between imaging experiments (up to 48 hour post injection). Mice that are not euthanized for excised tissue biodistribution will be housed in [redacted] until radioactivity decays to background (typically 10 half lives (127 hours))

Harmon, James	sheep	[redacted]	***	1908-37287A	Long term survival animals are provided a natural environment at [redacted] This facility is capable of providing housing with pasture and appropriate shelter for a large number of farm animals. This facility also has a veterinary technician living on the grounds. The technician is capable of blood draws, treatments, observing and assessing clinical health, and is GLP competent and maintains the facility under AAALAC and GLP compliancy. Transportation is provided on short notice and during off-hours. The facility does provide an excellent enriched environment for study animals.In order to maintain the quality and scientific integrity of this study as well as to generate a reliable model for future studies, we are required to follow the regulations set by FDA under 21CFRpart 58."
Haskell-Leuvano, Carrie	mice		[redacted]	1702-34552A, 1705-34823A	To house and have access to the specialized TSE mouse metabolic cages described in the protocol. Depending on the experiment (exercise and feeding), the experimental mice need to be continuously housed in these cages for data collection purposes for up to 9 weeks of experimental and 1-2 weeks equilibration
Haskell-Leuvano, Carrie	mice		[redacted]	1702-34552A	To acclimate the mice to a different light schedule and to acclimate the mice to the new room before the behavior testing starts.

Hecht, Stephen	rats	[redacted]	[redacted]	1908-37306A	The AeroCore is a University ESO/ISO (external/internal service organization). AeroCore provides animal testing services, as such, the animals are housed in the IMHA and all services are performed in the IMHA.
Heimpel, George	birds		***	1804-35830A	The zebra finches will be used to rear a quarantined insect. A certified quarantine facility is therefore needed to do the research
Henke, Craig	mice		[redacted]	1610-34253A, 1909-37429A	Hypoxia chamber studies.
Hove, Mark	fish		[redacted]	1902-36808A	To complete the life history and behavior studies mussels, animals (fish, amphibians, and aquatic invertebrates) need to be held in aquaria for experiments and observation. Recovery of microscopic mussel larvae from laboratory and naturally infested animals needs to be done in aquaria. Observations made during these studies will be used to improve natural resource management decisions.

Hrabik, Thomas	fish	[redacted]	[redacted]	1612-34364A, 1803-35684A	1612-34364A: This is a UROP provided by the University of Minnesota- Duluth. We need to house the fish here because it is the only place where there is enough space to hold all (6) of our holding tanks. We also have the rooms in which the tanks will be placed where we can control the amount of light and temperature.
Ikramuddin, Sayeed	mouse		[redacted]	1612-34402A	Metabolic testing (Indirect Calorimetry, Meal pattern analysis, body composition) are only conducted at [redacted]. For these evaluations only 40 mice from this protocol will be operated on and housed at [redacted]
[redacted]	NHP		[redacted]	1901-36714A	Animals must be quarantined after MPTP injection (either IM or intracarotid) and are held in a room adjacent to the [redacted] During this 72 hour period in which the animal is present, the room will be designated as an IMHA, otherwise it is managed by RAR
Kawakami, Yasuhiko	zebra fish		[redacted]	1704-34728A, 1908-37300A	No RAR housing is available for zebrafish. The zebra fish facility in [redacted] has been established and utilized for years by various research groups, therefore the facility is functionally able to house zebrafish.
Kim, Do-Hyung	mouse		[redacted]	1712-35414A	The protocol includes analysis of mouse physiology, such as the analysis of whole body fat content and food uptake. These assays are available at the Mouse Phenotyping Core in [redacted] (Director: Dr. Alessandro Bartolomucci). The mice in the area will be kept 1-2 weeks before the assays are conducted. Once all the assays are completed, mice will be sacrified and tissues will be collected

Kotz, Catherine	mouse	[redacted]	[redacted]	1701-34527A, 1705-34831A, 1706-34859A, 1902-36754A	In our study we will examine effects of optogenic stimulation/inhibition of orexin neurons in context of circadian rhythm. Our studies will include both calorimetry and SPA measurements as well as running wheel studies longer than 24h. Since those kind of observations can not be performed in [redacted] we need to use IMHA [redacted]
Kozak, Kenneth	salamanders		[redacted]	1704-34734A	Transporting salamanders between housing and testing facilities that are in different buildings has the potential to alter their basal metabolic rates by exposing them to sunlight and outdoor temperatures. Given that the animals are tested over a period of several months, this could adversely affect the results of the experiments as the outdoor climate fluctuates
Krook-Magnuson, Esther	mouse		[redacted]	1801-35497A	Our optogenetic experiments are done with 24-7 video EEG monitoring, and animals are tethered to allow light delivery. This requires special cages and investigator managed housing.
Kurtti, Timothy	hamsters		[redacted]	1809-36343A, 1904-36955A	Because of difficulties and special facilities needed to contain ticks, and on occasion infected ticks, the animals will be held outside of the primary housing area. When animals are infested with ticks they need to be examined several times daily. Infected animals, cultures and ticks are handled by this team that has extensive training and experience in the handling of human and animal disease agents transmitted by arthropods.
Kyba, Michael	mouse		[redacted]	1708-35046A	Our studies involve continuous monitoring of mice metabolic functions including daily food intake and body weight monitor as well as weekly body composition and indirect calorimetry analysis. Data acquisition systems are extremely expensive and therefore must be in a secured area
Langlois, Ryan	mouse, rat		[redacted]	1811-36488A	We are conducting a study that requires rats to be housed in a [redacted]) that cannot be serviced by RAR personnel. Therefore, it is necessary to obtain clearance for the self-management and maintenance of our rats housed in this [redacted].

Lee, Anna	mouse	[redacted]	[redacted]	1706-34906A, 1802-35545A	An IMHA is required because the voluntary drug consumption studies must be conducted in home cages in a room with minimal noise and low foot traffic.
Lemos, Julia	mouse		[redacted]	1801-35436A	Many of the studies conducted in the laboratory entail prior stress or drug exposure and subsequent behavioral or electrophysiology assays. We are requesting that a subset of "in use" animals will be held in the IMHA [redacted]) that is in close proximity to the behavioral and electrophysiology apparati in order to minimize/prevent extraneous forms of environmental stressors introducing variability into our experimental procedures. By reducing variability, this measure will reduce of the number of animals needed to fulfill the experimental mission of our laboratory.
Liang, Jennifer	zebra fish		[redacted]	1703-34641A, 1708-35044A, 1804-35821A	The provided housing is a state of the art aquatic system for housing zebrafish. This is not available anywhere else on campus [redacted] has a state of the art aquatic zebrafish facility that has been running since 2009. There are no other appropriate facilities for zebrafish on campus. Fish before 10-14 dpf will be in petri dishes in incubators [redacted]) or on a tray [redacted] After that, they will be in the recirculating aquatic system in [redacted]

Lin, Gufa	frogs, axolotls	[redacted]	[redacted]	1703-34677A	Tadpoles and axolotl juveniles need to be kept in the lab until **feeding is well established and they are large enough to survive** in the recirculating aquarium. Secondly, tadpoles or froglets that are under current experimentation, for example receiving daily warm pulse for transgene induction, or being kept in water with an added substance, or requiring regular **observation under fluorescence microscope, will be kept in the** lab. In the case of the added substance this cannot be done in the RAR area because the aquaria are recirculating type. For ongoing experiments requiring daily intervention the justificaiton is that the tadpoles should not be subjected to frequent water changes and transport unnecessarily, as this may compromise their health and the success of the experiments. Some tadpoles or axolotls will be subjected to recording under light fluorescent microcopies which is not available in RAR facilities
Lin, Jizhen	mouse		[redacted]	1610-34251A	Once mice are injected with Radioactive Copper (Cu64) they are kept in the catch room adjacent to the [redacted] machine behind lead for safety reasons.
Lowe, Dawn	mice		[redacted]	1907-37248A	Testing with sensitive physiology equipment that would be better suited in an investigator managed housing area rather than an RAR run facility because access will be limited to those familiar with the study
Lund, Troy	zebra fish		[redacted]	1906-37111A	[redacted]
Madill, Scott	horses		***	1906-37132A, 1906-37140A, 1906-37178A, 1907-37280A	**No Justification provided**

Malone, Erin	horses, sheep, cow, donkey, goat, camelids	[redacted]	***	1805-35927A	Animals will be housed at the [redacted] as this is also the location of the student laboratories. By housing the animals near the students and at the lab site, we are able to minimize the risk and stress of transport across campus and to maximize animal use during the relevant time period.
Mand, Sandy	fish, axolotls, reptiles		[redacted]	1611-34300A, 1702-34545A, 1705-34846A, 1712-35413A, 1811-36504A, 1907-37285A	These are animals in laboratory classrooms where students can observe them. This IS their primary housing area, but it is not an RAR facility. RAR does not typically house fish.
Mand, Sandy	fish		[redacted]	1702-34545A	These are animals in laboratory classrooms where students can observe them. This is their primary housing area but it is not an RAR facility. RAR does not typically house fish. The advantage to housing in this area is that the tanks are fed by well water.
Mand, Sandy	fish		[redacted]	1611-34300A, 1702-34545A, 1705-34846A, 1712-35413A	These are animals in laboratory classrooms where students can observe them. This IS their primary housing area, but it is not an RAR facility. RAR does not typically house fish.
Maragi, Frank	fish, amphibians, reptiles		[redacted]	1701-34515A	Fish and reptile species (i.e. turtles) are used in the Department of Biology 'Living Wall' to display animals discussed in Animal Physiology, Developmental Biology, and Genetics courses. It is necessary to house them in the classroom for students to observe during course instruction and discussion.
Martin, Cindy	pigs		[redacted]	1803-35699A	Animals will be undergoing a surgical procedure (arterial switch and atrial septectomy). It is anticipated that animals may need to stay anesthetized and supported by a ventilator for 12-48 hours [redacted] to have time to recover from the surgical procedure.
Martinson, Krishona	Horse		***	1808-36231A	**No Justification provided**

Mashek, Doug	mouse	[redacted]	[redacted]	1704-34729A	Our studies involve continuous monitoring of mice metabolic functions including indirect calorimetry analysis and locomotion. Data acquisition systems are extremely expensive and therefore must be in a secured area. Also, it is absolutely crucial to our research that the animals are monitored in an experimentally controlled environment and that we are able to directly monitor the animals at all times.
Masino, Mark	zebra fish		[redacted]	1806-36051A, 1904-36944A, 1905-37035A	Usage of zebrafish as a model organism requires the ability to breed fish to produce embryos for experimentation. As embryo production must be large enough to provide statistically meaningful results and embryos must be used within a few minutes of fertilization, in-house production of embryos is the only solution. This IMHA will also be housing and caring for additional animals (zebrafish) that are found on other protocols.
Masino, Mark	zebra fish embryos		[redacted]	1905-37035A	Our lab uses embryos/larvae from 1-7dpf for experiments, so we house them in the lab.
Masopust, David	mouse		[redacted]	1609-34184A, 1902-36825A	We are conducting a study that requires mice to be housed in a [redacted] that cannot be serviced by RAR personnel. Therefore, it is necessary to obtain clearance for the self-management and maintenance of our mice housed in this [redacted]
McGaugh, Suzanne	fish		[redacted]	1705-34800A, 1906-37158A, 1906-37186A	These animals need to be in a restricted and solitary space so we can easily set up and conduct behavior assays with them. RAR does not typically house fish.
McGaugh, Suzanne	fish		[redacted]	1705-34800A, 1906-37158A, 1906-37186A	These animals need to be in a restricted and solitary space so we can easily set up and conduct behavior assays with them. RAR does not typically house fish.
Menken, Jennifer	snake, turtle, salamander, toad, gecko, fish		[redacted]	1611-34357A	The animals listed are part of the educational programming at the Bell Museum. They are used for display in the "Touch and See Room" as well as for demonstration in on-site and off-site classroom room programs. They are an important part of our programming with the public, they are used to demonstrate anatomy, ecology, evolutionary adaptations and biological diversity

Mensinger, Allen	fish, frog	[redacted]	[redacted]	1807-36111A	The course tried to integrate physiology with behavior. We house the frogs in the lab so the students can observe their behavior and correlate with the experiments. The students are also instructed in basic animal handling and care techniques and by having the frogs in the lab, we can teach the students this aspect of a science lab; we prefer the students be able to observe the behavior of the weakly electric fish
Mensinger, Allen	fish		[redacted]	1801-35509A, 1801-35507A, 1903-36856A	Facility was built to specifically house aquatic animals
Mermelstein, Paul	rat		[redacted]	1809-36379A, 1811-36486A	We plan to perform behavioral testing on rats in specially-constructed operant chambers as described in Experiment 10 of the approved protocol. This testing will be performed in [redacted], which have been specifically modified to allow us to run our behavioral testing protocol. The only housing for rats in [redacted], and it will not be possible for us to maintain SPF within our operant chambers. Furthermore, SPF procedures would provide additional stress to our rats, and potentially interfere with the results of our behavioral testing.
Metzger, Joseph	mouse		[redacted]	1706-34883A	Our lab recently moved to [redacted] and the [redacted] is much more accessible for our lab. Previously we have used the [redacted]
Michael, Kerry	rat		[redacted]	1605-33704A	The Morris campus of the University is physically isolated from the rest of the University system--a three hour drive from the Twin Cities campus. It is therefore necessary for the sake of research productivity that we maintain our animals on site at the Morris campus.

More, Swati	mouse	[redacted]	[redacted]	1906-37128A	The telemetry system is only offered at [redacted] so this will be the only place the core offers this service. The mice must be housed in this area during the complete period of the study and they can not be taking in and out to avoid any stress to the mice. We will use the husbandary SOP for the [redacted], 1711-35305A. The animal will be housed for upto 3 months in this area based on the experimental design described below.
Munderloh, Ulrike	mice, hamster		[redacted]	1607-33953A, 1804-35774A, 1905-37105A	Because of difficulties and special facilities needed to contain ticks, and on occasion infected ticks, the animals will be held outside of the primary housing area. When animals are infested with ticks they need to be examined several times daily.
Nakagawa, Yasushi	mouse		[redacted]	1712-35389A	Equipment for behavioral tests is housed in [redacted] and it will take up to 8 weeks to complete these tests. Therefore, mice housed in [redacted] need to be located in [redacted] during behavioral testing. During sucrose preference test, we need to house the mice in IMHA.
Netoff, Tay	rat		[redacted]	1704-34730A	We need to video record the rats 24/7 for 15 days to find whether or not they have behavioral seizures
Niedernhofer, Laura	mouse		[redacted]	1808-36256A	We are conducting a study that requires mice to be housed in a [redacted]) that cannot be serviced by RAR personnel. Therefore, it is necessary to obtain clearance for the self-management and maintenance of our mice housed in this [redacted].

Oliver, Jonathan	mouse	[redacted]	[redacted]	1609-34130A	Because of difficulties and special facilities needed to contain ticks, and on occasion infected ticks, the animals will be held outside of the primary housing area. When animals are infested with ticks they need to be examined several times daily. [redacted] was designed with the input and advice of the late Dr. Patrick Manning and brought to standard according to his recommendations. Access to rooms [redacted] and [redacted] is limited to the principal investigators RAR personnel, technicians and students working on these projects. Infected animals, cultures and ticks are handled by this team that has extensive training and experience in the handling of human and animal disease agents transmitted by arthropods, The procedures for handling the animals are written out in detail in our laboratory SOP and all of our laboratory personnel are instructed in the procedures in case of emergency or absence of the principal investigators.
Olson, Erin	fish	[redacted]	***	1904-37007A	The fish under this protocol are housed for display in an office
Ondrey, Frank	mouse	[redacted]	[redacted]	1712-35415A, 1806-36059A, 1902-36832A, 1905-37092A	We have had our own research facility (IMHA) for more than 40 years. This is our own research project, and specialized equipment is housed in the facility.

Ondrey, Frank	mouse	[redacted]	[redacted]	1806-36059A	Mice will be imaged five times each, when radioisotope copper 64 is injected, at Time Zero, and 12, 24, 36 and 48 hours, post injection. During this time the mice will be housed in the [redacted]. This [redacted] is intended to hold radioactive research animals, and is only accessible from [redacted]. Once imaging is complete, these mice will be euthanized via cervical dislocation, under Isoflurane anesthesia. Carcasses will be disposed of in house, allowing the radioactivity to dissipate before disposal. 64Cu has a half life of 12.7 hours. Caging will be collected from [redacted] once radioactivity has dissipated.
Osborn, John	rat		[redacted]	1612-34416A, 1708-35043A, 1805-35904A, 1812-36628A	Mice involved in this protocol will be instrumented with radio telemeter equipment which requires constant monitoring and measurement. In addition, animals waiting to be implanted with this equipment will also be housed in this room to reduce the stress of being moved prior to the study
Palmer, Melissa	fish		***	1711-35315A	The IMHA is needed in order to have the fish species on display for educational purposes. The location of the IMHA is crucial for the purpose of the display and need of the animals.
Patterson, Ned	dog		[redacted]	1901-36697A	For the at least the first 24 hours (and longer at the discretion of the study PI) the dogs will be in the [redacted] that is staffed 24 hours a day by certified veterinary technicians; [redacted] is for our clinical patients (dog, cat) and is monitored 24 hours a day by a minimum of 2 certified veterinary technicians who check each patient at least once every hour. For any dog out of the RAR housing and in ICU or in the [redacted] for more than 1 week, the PI will have another VMC clinician in the appropriate medical area co-manage the case, and the other clinician will have final authority on all medical decisions that are not directly indicated in the protocol or by IACUC guidelines.

Paulsen, Megan	mouse	[redacted]	[redacted]	1708-35022A	Studies involve continuous monitoring of mice metabolic functions including daily food intake and body weight monitor as well as weekly body composition and indirect calorimetry analysis. Data acquisition systems are extremely expensive and therefore must be in a secured area. Also, it is absolutely crucial to our research that the animals are monitored in an experimentally controlled environment and that we are able to directly monitor the animals at all times.
Peterson, Lisa	mouse		[redacted]	1610-34220A	The equipment for the exposure of animals to the inhaled aldehyde vapors is in this area
Ponder, Julia	birds		***	1705-34793A, 1901-36695A	The [redacted] has cages, flight rooms and facilities specifically designed for the safe housing of raptors as well as technical staff with extensive experience in managing these birds. Specific needs include cage size, limited external visibility and perch designs
Portoghese, Phillip	mouse		[redacted]	1702-34546A, 1809-36366A	In a number of our experiments we test the mice for acute tolerance. This requires the animals to be brought up the night before LPS injection wait another 24 hours for testing of the compound and another 48 hours to test the ED80 dose of the drug to see if there is tolerance. for the sickle cell mice, these animals are quite fair and at this time we are unsure how they will respond to the treatment. There will not be a large number being used at one time and we would like to keep them upstairs for 72 hours for observation
Primus, Alexander	fish		[redacted]	1610-34232A	Housing for fish (larger than zebrafish) is not readily avlaiable in RAR facilities (that I am aware of). Also, this lab space is designed for housing aquatic organisms.

Primus, Alexander	fish (various species)	[redacted]	[redacted]	1610-34203A	One of the goals of this course is to train students to manage or work in an aquaponics facility. Therefore students in this course need hands-on experience with live fish. The plant growth facility is also an ideal setting for the course because most aquaponics facilities in north-temperate climates rely on greenhouses for light and heat through winter.
Primus, Alexander	fish		***	1808-36276A	Fish will require high quality care to eliminate confounding variables of poor fish health for the experiment. Staff at MCL have the expertise and equipment required to maintain this level of care.
Robinson, Jerid	mouse		[redacted]	1906-37164A	mice involved in this protocol will be instrumented with radio telemeter equipment which requires constant monitoring and measurement. This equipment is housed in [redacted]. In addition, animals waiting to be implanted with this equipment will also be housed in this room to reduce the stress of being moved prior to the study
Rothwell, Patrick	mice		[redacted]	1810-36447A	Our lab studies the effects of behavioral experience on brain function and behavior. My previous studies have shown that even mild stress (handling, injections, and/or exposure to a novel environment) can have significant impact on our outcome measures. The IMHA will enable us to minimize unwanted stress (e.g., transport from housing colony to lab), and control our animals' environment to reduce variability in our data.

Rothwell, Patrick	mice	[redacted]	[redacted]	1810-36447A	Our lab studies the effects of behavioral experience on brain function and behavior. My previous studies have shown that even mild stress (handling, injections, and/or exposure to a novel environment) can have significant impact on our outcome measures. The IMHA will enable us to minimize unwanted stress (e.g., transport from housing colony to lab), and control our animals' environment to reduce variability in our data.
Ruan, Hai-Bin	mice		[redacted]	1702-34582A, 1811-36529A	Our studies involve continuous monitoring of mice metabolic functions including daily food intake and body weight monitor as well as weekly body composition and indirect calorimetry analysis. Data acquisition systems are extremely expensive and therefore must be in a secured area. Also, it is crucial to our research that the animals are monitored in an experimentally controlled environment and that we are able to directly monitor the animals at all times.
Phelps, Nicholas	fish		[redacted]	1611-34299A	The [redacted] we will use is also used for the UMN course Hort/FW4601 Aquaponics. It is an ideal setting for the course and our research because most aquaponics facilities in north-temperate climates rely on greenhouses for light and heat through winter.
Schwertfeger, Kaylee	mouse		[redacted]	1909-37381A	We are conducting a study that requires mice to be housed in a [redacted] that cannot be serviced by RAR personnel. Therefore, it is necessary to obtain clearance for the self management and maintenance of our mice housed in this [redacted]
Shimizu, Yoji	mouse		[redacted]	1802-35542A	We are conducting a study that requires mice to be housed in a [redacted]) that cannot be serviced by RAR personnel. Therefore, it is necessary to obtain clearance for the self management and maintenance of our mice housed in this [redacted]

Sivaramakrishnan, Sivaraj	cichlids	[redacted]	[redacted]	1805-35886	RAR does not maintain Cichlid facilities
Smanski, Michael	fish		[redacted]	1904-36985A	There is no non-IMHA housing for zebrafish on campus
Smanski, Michael	fish		[redacted]	1711-35334A	These are animals in a laboratory classroom where students can work with and observe them. This is their primary housing area but it is not an RAR facility. RAR does not typically house fish
Sorensen, Peter	fish		***	1712-35381A, 1904-36985A	RAR does not possess fish holding facilities that are either large enough or have well water for our carps
Sorensen, Peter	fish		[redacted]	1712-35381A	RAR does not possess fish holding facilities that are either large enough or have well water for our carps.
Spencer, Sade	mouse		[redacted]	1804-35790A, 1804-35806A	Many of the studies conducted in the laboratory entail prior stress or drug exposure and subsequent behavioral or electrophysiology assays. We are requesting that a subset of "in use" animals will be held in the IMHA on [redacted]) that is in close proximity to the behavioral and electrophysiology apparati in order to minimize/prevent extraneous forms of environmental stressors introducing variability into our experimental procedures. By reducing variability, this measure will reduce of the number of animals needed to fulfill the experimental mission of our laboratory.

Stephens, David	birds	[redacted]	[redacted]	1707-34943A	We house blue jays and starlings in our facility in the [redacted] so that we can study their behavior as described in the accompanying protocol. The [redacted] allows us to maintain our blue jay colony in a large room adjacent to the procedure rooms; that is also readily accessible to our offices and data analysis facilities.
Stromnes, Ingunn	mouse		[redacted]	1703-34658A	We are conducting a study that requires mice to be housed in a [redacted]) that cannot be serviced by RAR personnel. Therefore, it is necessary to obtain clearance for the self-management and maintenance of our mice housed in this [redacted]
Thayer, Stanley	rat		[redacted]	1612-34372A	These animals will be used for overnight, 24 hour sessions of EEG testing. Moving them back and forth from [redacted] will induce stress. Animals housed for three weeks in IMHA
Thayer, Stanley	rat		[redacted]	1612-34372A	These experiments require that the mice remain isolated to avoid stress that could disrupt behavioral testing.
Thomas, Mark	mice		[redacted]	1711-35337A	Our lab studies the effects of environmental experience on brain function. Our recent studies have shown that even mild stress (handling, injections and/or novelty exposure) can have significant impact on our outcome measures. The IMHA will enable us to minimize unwanted stress (e.g. transport from housing colony to lab) and control our animals' environment to reduce variability in our data
Thomas, Mark	rat		[redacted]	1711-35358A	Our lab studies the effects of environmental experience on brain function. Our recent studies have shown that even mild stress (handling, injections and/or novelty exposure) can have significant impact on our outcome measures. The IMHA will enable us to minimize unwanted stress (e.g. transport from housing colony to lab) and control our animals' environment to reduce variability in our data

Thomas, Mark	mice	[redacted]	[redacted]	1711-35337A	Our lab studies the effects of environmental experience on brain function. Our recent studies have shown that even mild stress (handling, injections and/or novelty exposure) can have significant impact on our outcome measures. The IMHA will enable us to minimize unwanted stress (e.g. transport from housing colony to lab) and control our animals' environment to reduce variability in our data
Tischler, Anna	mice		[redacted]	1707-34999A, 1709-35107A, 1804-35785A	Mice will be infected with Mycobacterium tuberculosis, a bacterium that is classified as a [redacted] due to its high infectivity and transmission via the respiratory route. Mice infected with M. tuberculosis may release infectious bacteria to the air. Therefore, infected mice must be housed inside the [redacted] to contain the highly infectious organisms. Standard operating procedures for work in the [redacted] caging equipment used for housing the infected animals are designed to reduce the risk of personnel exposure to infectious organisms during husbandry.
Todd, Jeffrey	cat, dog--client owned		[redacted]	1906-37145A	cats and dogs are only hospitalized within our hospital, the [redacted], until they are adopted or fostered as part of the blood donor program
Townsend, DeWayne	mice		[redacted]	1810-36460A	some of the studies proposed use specialized equipment that cannot be placed into the standard RAR managed rooms

Tranquillo, Robert	sheep	[redacted]	***	1701-34530A, 1709-35109A	[redacted] is able to provide a natural environment complete with outstanding methods of care, husbandry and research practices. It is capable of providing housing for a large number of animals with extended survival time-points. The farm is GLP compliant and is inspected biannually by University of MN IACUC and monthly by RAR veterinarians
Trent, Ava	horse, camelids	[redacted]	***	1712-35369A	Horses and camelids that are free of infectious disease and are not intended for advanced imaging will be housed at the [redacted]. Horses/camelids with potentially infectious disease and/or intended for practice with the advanced imaging modalities will be housed in the [redacted]
Tretyakova, Natalia	mouse	[redacted]	[redacted]	1706-34933A	The equipment for the exposure of animals for the inhalations is in this location, which is the [redacted] IMHA. The [redacted] is an External Service Organization/Internal Service Organization for the University. This study is an ISO project.
Trumble, Troy	horse	[redacted]	***	1710-35272A, 1902-36738A	**1710-35272A: No Justification provided;** 1902-36738A: RAR does not house horses
Trumble, Troy	horse	[redacted]	***	1902-36738A	1902-36738A: No other housing option on Twin Cities/St. Paul campus for housing horses

[redacted]	NHP	[redacted]	[redacted]	1904-36959A	Animals must be quarantined after MPTP injection (either IM or intracarotid) and are held in a room adjacent to the [redacted]. During this 72 hour period in which the animal is present, the room will be designated as an IMHA, otherwise it is managed by RAR
Vossel, Ketih	mouse		[redacted]	1703-34627A	While animals are being recorded, they must be connected by insulated wire to data acquisition that feeds into AHC-secured devices. This system requires a significant amount of electrical power availability, as well as personnel who are familiar with the apparatus and data acquisition software to be able to identify and troubleshoot problems.
Wagner, Carston	mouse		[redacted]	1807-36095A	Currently we are approved for IMHA housing and have passed all required inspections for the animals we keep in our lab. The animals we keep in the lab have some type of neuropathy or tumor that requires constant supervision to make sure they are eating, clean bedding and to watch tumor growth. They also require testing more frequently and the stress of moving them back and forth from [redacted] would provide an additional stress.
Ward, John	frogs		[redacted]	1902-36788A	Housing allows daily post operative monitoring by the PI to ensure that the frog does not have negative consequences to surgery
Weaver, Cyprian	newts		[redacted]	1612-34381A	We will be performing the resection surgery on the animals. After surgery they need to be continuously monitored for at least three days of surgery for any kind of discomfort or distress
Waye, Heather	snakes, amphibians		[redacted]	1701-34462A, 1710-35172A, 1711-35353A, 1901-36655A, 1907-37208A	These animals are housed at [redacted] where they are used for display purposes or experimental subjects in a variety of classroom situations/laboratory research
Wefel, Sara	horse		***	1708-35045A	**No Justification provided**

Wiedmann, Timothy	mouse	[redacted]	[redacted]	1610-34236A, 1611-34288A	We have had our own research facility for more than 40 years. This lab is an External Service Organization/Internal Service Organization for the University. This project will be an ESO project.
Wong, Henry	mouse		[redacted]	1803-35719A	In brief, animals for screening are transported to the IMHA and allowed to acclimate for 24 hours prior to the start of any study. The mice are housed for all experimental manipulations for the duration of that particular study since they are tested or administered with compound daily. Animals would experience undue stress being transferred back and forth to the holding room everyday. In addition, the investigator will be more easily able to observe for any adverse effects. The longest duration study is the chronic tolerance test where mice will be housed in the IMHA for a maximum of 9 days. The animals are injected twice a day and are observed for any adverse effects due to the concentration of the compound being administered.
Wong, Henry	mouse		[redacted]	1803-35719A	In brief, animals for screening are transported to the IMHA and allowed to acclimate for 24 hours prior to the start of any study. The mice are housed for all experimental manipulations for the duration of that particular study since they are tested or administered with compound daily. Animals would experience undue stress being transferred back and forth to the holding room everyday. In addition, the investigator will be more easily able to observe for any adverse effects. The longest duration study is the chronic tolerance test where mice will be housed in the IMHA for a maximum of 9 days. The animals are injected twice a day and are observed for any adverse effects due to the concentration of the compound being administered.

Zordoky, Beshay	mouse	[redacted]	[redacted]	1807-36187A	The mice for the stress studies will be housed in the [redacted] because our studies involve continuous monitoring of mice metabolic functions including daily food intake and body weight monitor. Also, it is absolutely crucial to our research that the animals are monitored in an experimentally controlled environment and that we are able to directtly monitor the animals at all times for the behavioral assessment.

David Stephens	[redacted]
4/19	Quarterly Inspections
5/28/19	Veterinary Consult
6/19	Quarterly Inspections
7/19	Quarterly Inspections
8/16/19--Semi-annual	No Deficiencies
9/19	Quarterly Inspections

Cyprian Weaver	[redacted]
4/30/19	Veterinary Consult
5/19	No vet consults as all newts have been euthanized

Anthony Baughn	[redacted]
4/22/2019	Veterinary Consult
5/20/19--Semi-annual	No Deficiencies
6/17/19	Veterinary Consult
7/15/19	Veterinary Consult
8/26/2019	Veterinary Consult
9/16/2019	Veterinary Consult

Scott Madill	[redacted]
4/19	Quarterly Inspections
5/19	Quarterly Inspections
6/6/19--Semi-annual	No Deficiencies
7/19	Quarterly Inspections
8/19	Quarterly Inspections
9/19/19	No vet consult conducted

Deborah Ferrington	[redacted]
4/19	Quarterly Inspections
5/19	Quarterly Inspections
6/11/19	Veterinary Consult
7/19	Quarterly Inspections
8/19	Quarterly Inspections
9/24/19--Semi-annual	No Deficiencies

David Masopust	[redacted]
4/22/19	Veterinary Consult
5/20/19--Semi-annual	No Deficiencies
6/17/19	Veterinary Consult
7/15/19	Veterinary Consult
8/26/19	Veterinary Consult
9/16/19	Veterinary Consult

Mark Masino	[redacted]
4/19	Quarterly Inspections
5/16/19	Veterinary Consult
6/19	Quarterly Inspections
7/19	Quarterly Inspections
8/15/19--Semi-annual	No Deficiencies
9/19	Quarterly Inspections

Mark Sanders	[redacted]
4/19	No housing for month of April so no visit conducted
5/7/19--Semi-annual	No Deficiencies
6/26/19	Veterinary Consult
7/12/19	Veterinary Consult
8/27/19	Veterinary Consult
9/5/19	Veterinary Consult

Anna Tischler	[redacted]
4/22/19	Veterinary Consult
5/20/19--Semi-annual	No Deficiencies
6/17/19	Veterinary Consult
7/15/19	Veterinary Consult
8/26/19	Veterinary Consult
9/16/19	Veterinary Consult

Frank Ondrey	[redacted]
4/19	Quarterly inspections
5/19	Quarterly inspections
6/5/19	Veterinary Consult
7/19	Quarterly inspections
8/19	Quarterly inspections
9/10/19--PAM/Semi-annual	No Deficiencies

Philip Portoghese	[redacted]
4/30/19--Semi-annual/Second Surgery	No Deficiencies
5/19	Quarterly Inspections
6/19	Quarterly Inspections
7/31/19	Veterinary Consult
8/19	Quarterly Inspections
9/19	Quarterly Inspections

Michael Benneyworth	[redacted]
4/19	No animals housed for month of April so no visit conducted
5/19	No animals housed for month of May so no visit conducted
6/19	No animals housed for month of June so no inspection conducted
7/19	No animals housed for month of July so no visit conducted
8/7/19--Semi-annual	No Deficiencies
9/26/19	Veterinary Consult

Melanie Graham	[redacted]
4/3/2019	Veterinary Consult
6/21/19--PAM/Semi-annual	No Deficiencies
7/3/2019	Veterinary Consult
8/6/2019	Veterinary Consult

John Collister	[redacted]
11/18	PI has closed laboratory, no further housing

Patrick Rothwell	[redacted]
4/24/2019	Veterinary Consult
5/23/2019	Veterinary Consult
6/26/2019	Veterinary Consult
7/31/2019	Veterinary Consult
8/29/2019	Veterinary Consult
9/30/19--PAM/Semi-annual	Minor: new housing chambers for home cage activity experiments that last 24 hours. Will need to do microbiological testing
	Minor: container of food not labeled with mill/fill dates
	Minor: staff dumping cage bedding without proper PPE
	Minor: ROHP requirements not met by all staff listed on protocol

Mark Thomas	[redacted]
4/3/19 and 4/17/19	Veterinary Consult
5/15/19 and 5/22/19	Veterinary Consult
6/19/2019	Veterinary Consult
7/17/2019	Veterinary Consult
8/21/2019	Veterinary Consult
9/17/19--Second Surgery/Semi-annual	Minor: ROHP requirements not met by all staff listed on protocol
	Minor: mice undergoing targeting surgeries are euthanaized prior to recovery. Euthanasia method used not approved in protocol

Esther Krook-Magnuson	[redacted]
4/15/19	Veterinary Consultation
5/19	No Inspection--Reduced Frequency
6/26/19	Veterinary Consultation
7/19	No Inspection--Reduced Frequency
8/14/19 and 8/20/19--PAM/Semi-annual	No Deficiencies
9/19	No Inspection--Reduced Frequency

Richard Bianco	[redacted]
4/10/19	Veterinary Consult
5/19/19	No Inspection--Reduced Frequency
6/6/19	Veterinary Consult
7/24/19--Semi-annual	No Deficiencies
8/19	No Inspection-Reduced Frequency
9/11/19	Veterinary Consult

Gufa Lin	[redacted]
4/19	Quarterly Inspections
5/19	Quarterly Inspections
6/19/19--Second Surgery/Semi-annual	Minor: autoclaved material not dated
	Minor: needs to have a barrier in between animal and cage bedding
	Minor: uses distilled water for injection
	Minor: needs to store working anesthetic/analgesic solutions in sterile container
	Minor: needs to add two extra days of post operative records for frog/axolotl surgical sheets
7/19	Quarterly Inspections
8/19	Quarterly Inspections
9/19	No animals housed for month of September so no vet consult conducted

Sivaraj Sivamakrishnan	[redacted]
4/19	Quarterly inspections
5/2/19--PAM/Semi-annual	No Deficiencies
6/19	Quarterly inspections
7/19	Quarterly inspections
9/16	Veterinary Consultation

John Bischof	[redacted]
4/19	Quarterly Inspection
5/19	Quarterly Inspection
6/24/19--PAM/Semi-annual	No Deficiencies
7/19	Quarterly Inspection
8/19	Quarterly Inspection
9/19	No Veterinary consult done as no fish housed in space

Tim Kurtti	[redacted]
4/19	No Inspection--Reduced Frequency
5/28	Veterinary consult
6/19	No Inspection--Reduced Frequency
7/19	No Consult done
8/19	No Consult done
9/20/19--PAM/Semi-annual	Minor: ROHP requirements not met by all staff listed on protocol

[redacted] Bartolomucci	[redacted]
4/12/2019	Veterinary Consult
5/10/2019	Veterinary Consult
6/7/2019	Veterinary Consult
7/3/2019	Veterinary Consult
8/6/19--Semi-annual	Minor: tape used in [redacted] to secure cage cards to cage card holders
	Minor: cylindrical housing cages fro when rats are tethered for infusion experiments are hand washed without microbiological testing--[redacted]
	Minor: should find different mechanism of securing black bag to caging as tape is currently used--[redacted]
9/27/2019	Veterinary Consult

Tay Netoff	[redacted]
4/16/2019	Veterinary Consult
5/13/2019	Veterinary Consult
6/27/2019	Veterinary Consult
7/3/19 and 7/29/19	Veterinary Consult

Brendan Dougherty	[redacted]
4/19	No visit as PI has not housed animals for month of April
5/19	No visit as PI has not housed animals for month of May

8/22/19--PAM/Semi-annual	Minor: flurogold tracer surgically injected into rat and then animal euthanized but tracer injection not approved in protocol
	Minor: non-pharmaceutical grade glue used on skull of rats
	Minor: no procedure details for special caging where animals are continuously tethered for seizure monitoring
	Minor: when animals are not housed in the lab, the rodent trap should be removed from the floor
9/25/2019	Veterinary Consult

Keith Vossel	[redacted]
6/19	No visit as PI has not housed animals for month of June
7/22/2019	Veterinary Consult
8/7/2019	Veterinary Consult
9/18/2019	Veterinary Consult

Timothy Ebner/Clark Chen	[redacted]
7/26/2019	Veterinary Consult
8/19/2019	Veterinary Consult
9/26/19--Second Surgery/Semi-annual	Minor: ROHP requirements not met by all staff listed on protocol
	Minor: vaporizer overdue for calibration

6/20/19--PAM/Semi-annual	Minor: disaster plan overdue for review
	Minor: needs one extra day of Carprofen administration
7/19	No animals housed for month of July so no veterinary consult done
8/19	No animals housed for month of August so no veterinary consult done
9/19/2019	Veterinary Consult

Matthew Aliota	[redacted]
7/2/2019	Veterinary Consult
8/27/2019	Veterinary Consult
9/30/19--Semi-annual	No Deficiencies

Fall 2019 IACUC Inspection Report

Inspection Type	Number	Percentage
# of PAM Inspections	117	41%
# Second Surgery Inspections	36	13%
# of Initial Surgery Inspections	6	2%
#PAM/Semi-Annual	28	10%
#Second Surgery/Semi-annual	8	3%
#Initial Surgery/Semi-annual	1	0%
# of Semi-Annual Inspections	74	26%
# of Ag Inspections	16	6%
Total # of Inspections	**286**	**100%**
Total # of Findings	**201**	

Inspection Finding Summary	Number	Percentage
Finding Category		
IACUC (% of total findings)	178	89%
DEHS (% of total findings)	0	0%
DEHS-CS (% of total findings)	0	0%
IBC (% of total findings)	0	0%
OHS (% of total findings)	16	8%
Ag (% of total findings)	7	3%
Type of Inspection		
PAM (% of total findings)	100	50%
Second Surgery Inspection (% of total findings)	18	9%
Initial Surgery Inspection (% of total findings)	5	2%
Initial Surgery/Semi-annual (% of total findings)	0	0%
Semi-annual (% of total findings)	20	10%
PAM/Semi-annual (% of total findings)	27	13%
Second Surgery/Semi-annual (% of total findings)	13	6%
Ag (% of total findings)	7	3%
Self Report (% total findings)	10	5%
Surgical Records Review (% of total findings)	0	0%
Committee Request (% of total findings)	0	0%
Unannounced visit (% of total findings)	0	0%
Outside reports of non-compliance (% of total	1	0%

Buildings	Inspected
[redacted]	

* Buildings where animals are housed or used as part of AAALAC Accredited Unit

Type of Finding		
Minor (% of total findings)--Standard	160	80%
Minor (% of total findings)--Other	6	3%
Significant (% of total findings)--Standard	30	15%
Significant (% of total findings)--Other	5	2%

Repeat Findings		
	Fall 2019	**Spring 2019**
Minor -----> Minor:	2	5
Significant -----> Significant:	3	1
Total # of repeat findings	**5**	**6**

Fall 2019 IACUC Inspection Report

SIGNIFICANT Fall 2019		
Findings	**Number**	**Percentage**
Euthanasia methods not followed	1	3%
Analgesics not given after surgical or anesthetic procedures as outlined in protocol**	5	14%
Analgesics not given (time/duration) as outlined in protocol**	8	23%
Anesthetic not used when performing procedures but protocol indicates anesthetic will be used	0	0%
Cats used as part of teaching protocol but species not approved	1	3%
blood collection conducted but procedure not approved in protocol*	1	3%
Lidocaine/bupivacaine not given prior to or after surgery	0	0%
Personnel working with animals but not listed as staff on study	1	3%
Expired anesthetic/ analgesic/euthanasia solution in use	1	3%
anesthetic procedures conducted but not approved in protocol**	5	14%
uses left over teaching quail as live prey for raptors	1	3%
Housing of animlas outside of RAR without approval	4	11%

SIGNIFICANT Spring 2019		
Findings	**Number**	**Percentage**
Euthanasia methods not followed	1	3%
Analgesics not given after surgical or anesthetic procedures as outlined in protocol	7	24%
Analgesics not given (time/duration) as outlined in protocol**	2	7%
Anesthetic not used when performing procedures but protocol indicates anesthetic will be used	1	3%
Sheep that received sedation did not have vital monitoring performed every 15 minutes but only pre-sedation measurements were obtained	1	3%
Animal work conducted without an approved protocol	2	7%
Lidocaine/bupivacaine not given prior to or after surgery	2	7%
Personnel working with animals but not listed as staff on study	1	3%
Expired anesthetic/ analgesic/euthanasia solution in use	1	3%
Body temperature and oxygen saturation levels low during surgical procedures without any intervention	1	3%
Cage space requirements for pigs not followed-- overcrowding in nursery	1	3%
three NHP underwent CT scans for anatomical imaging but CT scans not approved in protocol*	1	3%

Survival surgery conducted but procedures not approved on protocol	4	11%
Care not given to animals that were housed in IMHA for up to six days	1	3%
One NHP received less than the minimum water allotment due to transcription error	1	3%
controlled substances not properly stored	0	0%
CO2 tank unsecured	1	3%
Total Significant Findings	**35**	100%

***Reported to OLAW**

Survival surgery conducted on protocol that does not have survival procedures as approved (animals ordered on wrong protocol)	2	7%
mice underwent up to three cardiotoxin injury surgical procedures but protocol does not outline multiple injury surgeries in same animal	1	3%
Animals left unattended in RAR while recovering from anesthesia	1	3%
controlled substances not properly stored	1	3%
Staff euthanizing two cages of mice with CO2 left them in euthanasia chamber unattended	1	3%
due to miscommunication on the weekend treatment sheet, two sheep did not receive antibiotics; last dose of Carprofen or vitals. No pain seen on weekend by vets	1	3%
Report details mouse found on floor of research area that was lethargic and underwent some type of surgical intervention as apparent in surgical repair of chest, animal not properly euthanized by cervical dislocation	1	3%
Total Significant Findings	**29**	100%

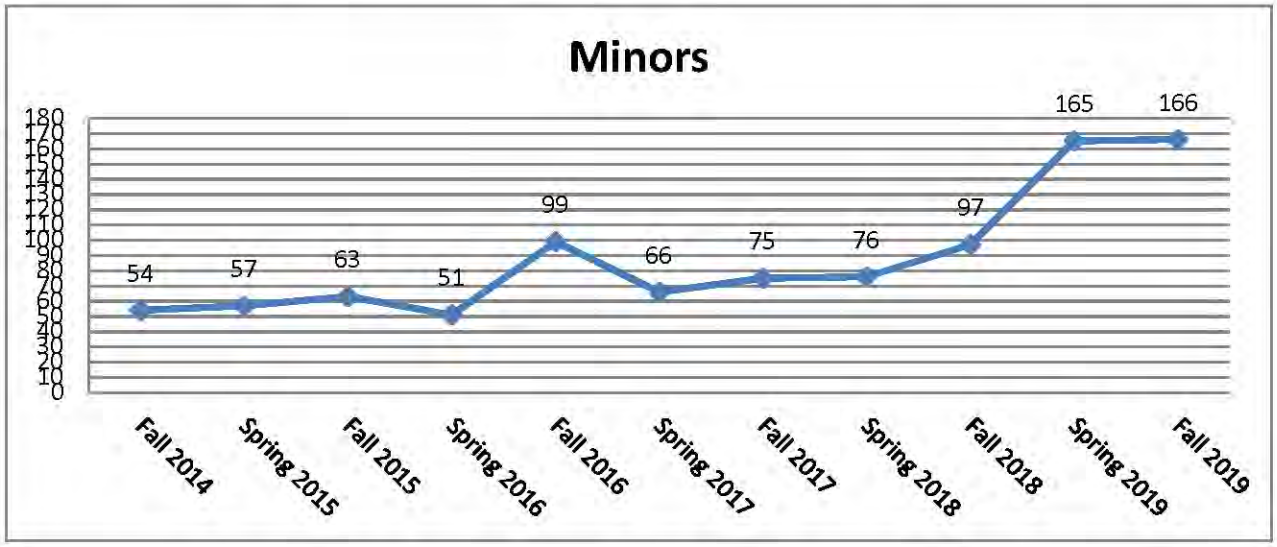
MINOR Fall 2019		
Findings	**Number**	**Percentage**
ROHP	13	8%
IPNF--Expired items	4	2%
IPNF-Surgical Records	8	5%
PNF	43	26%
PNF-Other	0	0%
IPNF--Standard	43	26%
IPNF-Other	0	0%
DEHS	0	0%
DEHS-CS	0	0%
IPNF-Anesthetic Records	8	5%
Ag--Standard	6	4%
Ag--Other	0	0%
IPNF-Personnel Training Records	11	7%
OHS	3	2%
IPNF-Aseptic Technique	13	8%
Husbandry	14	8%
Total Minor Findings	**166**	**100%**

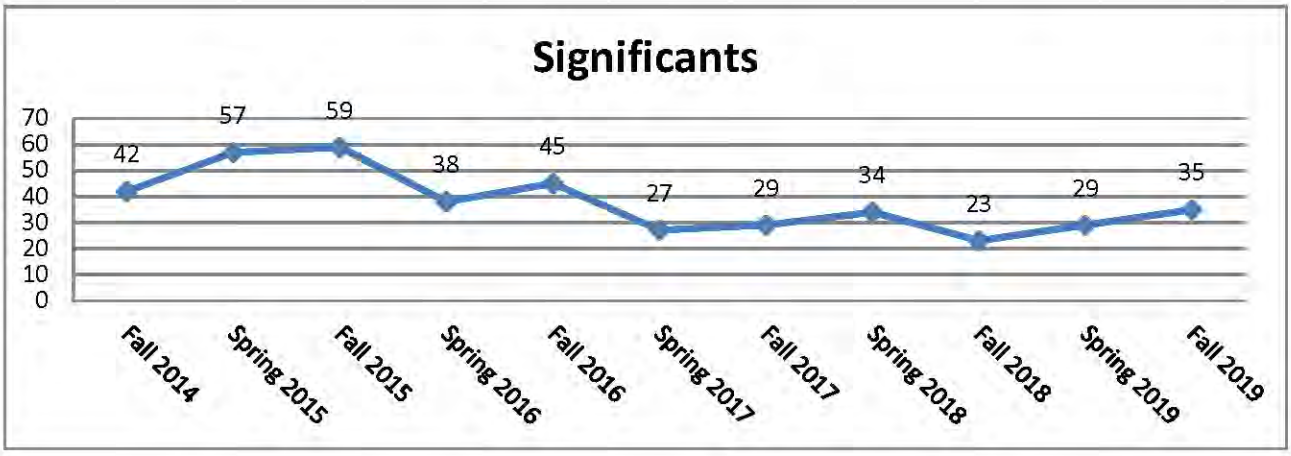
MINOR Spring 2019		
Findings	**Number**	**Percentage**
ROHP	11	7%
IPNF--Expired items	1	1%
IPNF-Surgical Records	7	4%
PNF	49	30%
PNF-Other	1	1%
IPNF--Standard	37	22%
IPNF-Other	0	0%
DEHS	1	1%
DEHS-CS	0	0%
IPNF-Anesthetic Records	11	7%
Ag--Standard	15	9%
Ag--Other	0	0%
IPNF-Personnel Training Records	7	4%
OHS	1	1%
IPNF-Aseptic Technique	18	11%
Husbandry	6	4%
Total Minor Findings	**165**	**100%**

*IPNF: IACUC Policy Not followed

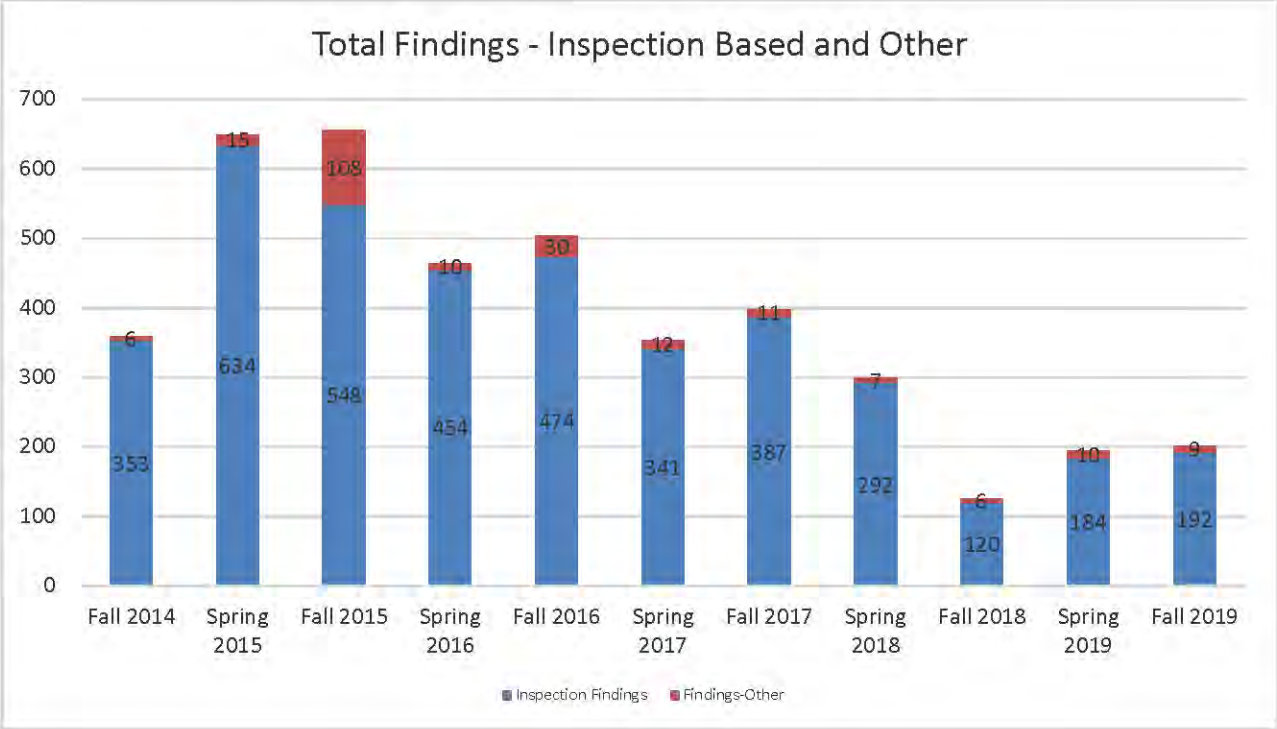
*PNF: Protocol Not Followed

	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019
Minors	54	57	63	51	99	66	75	76	97	165	166
Significants	42	57	59	38	45	27	29	34	23	29	35

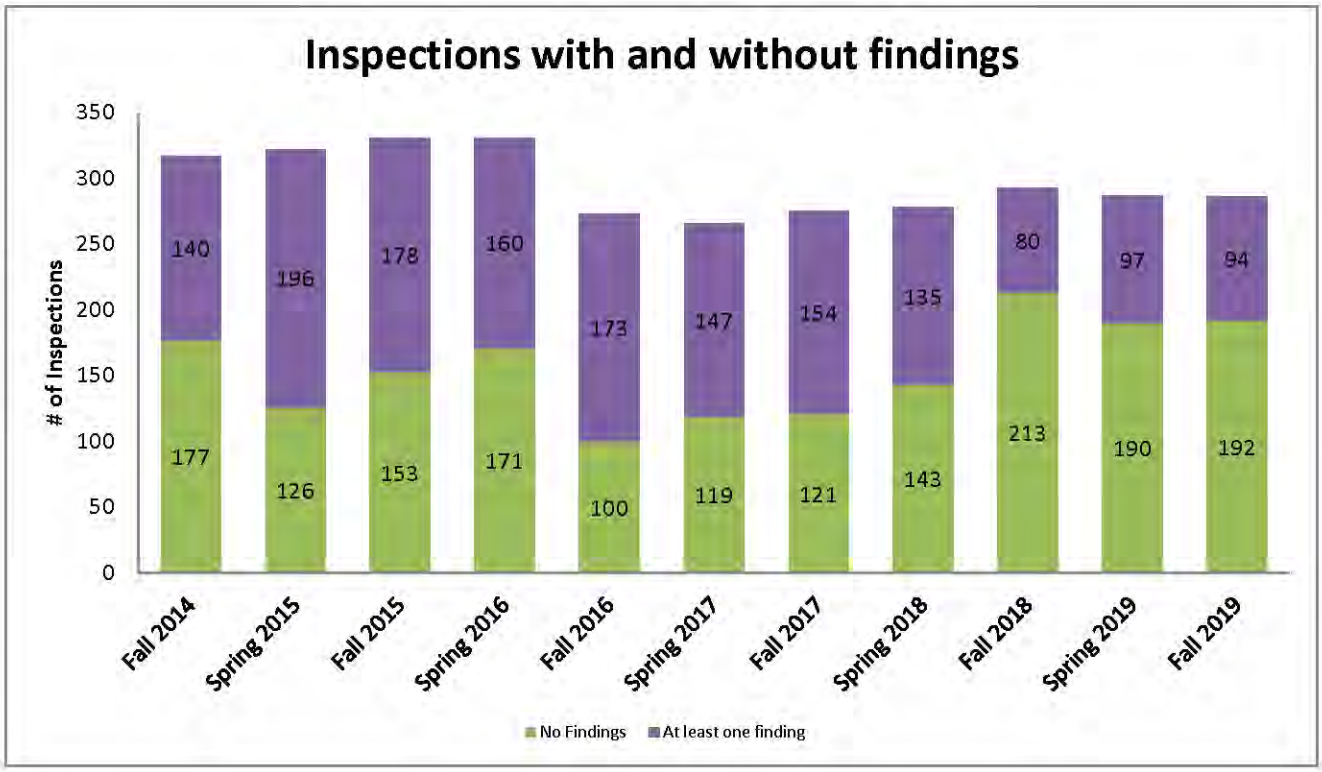




	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019
Inspection Findings	353	634	548	454	474	341	387	292	120	184	192
Findings-Other	6	15	108	10	30	12	11	7	6	10	9

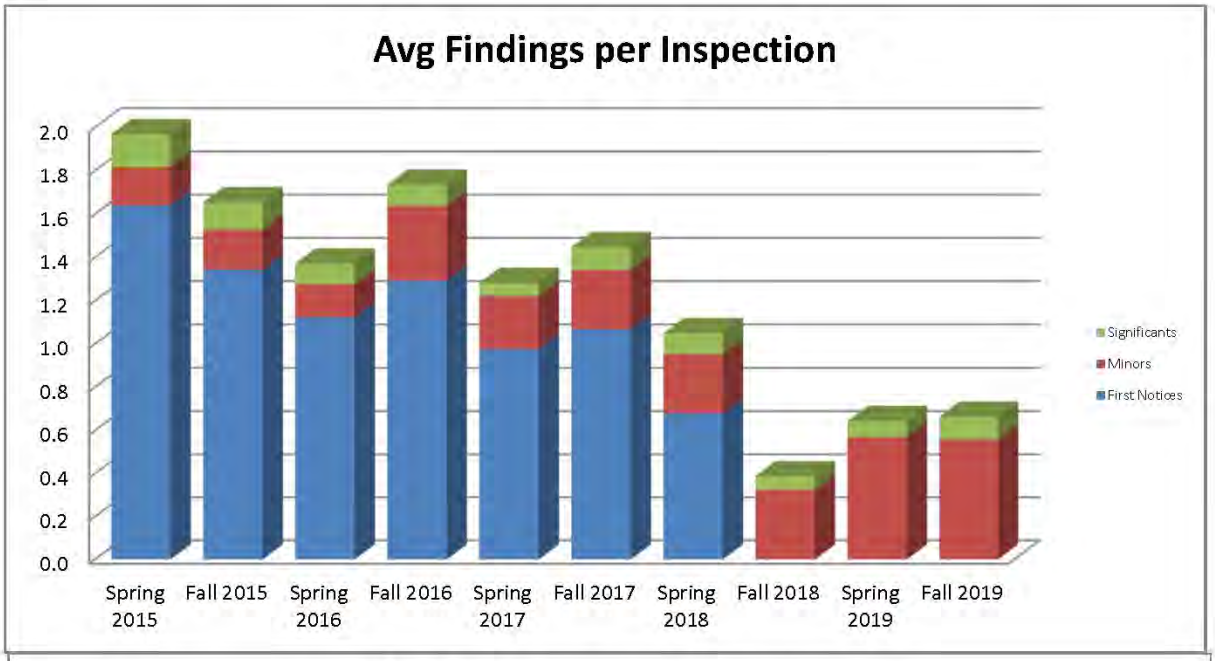


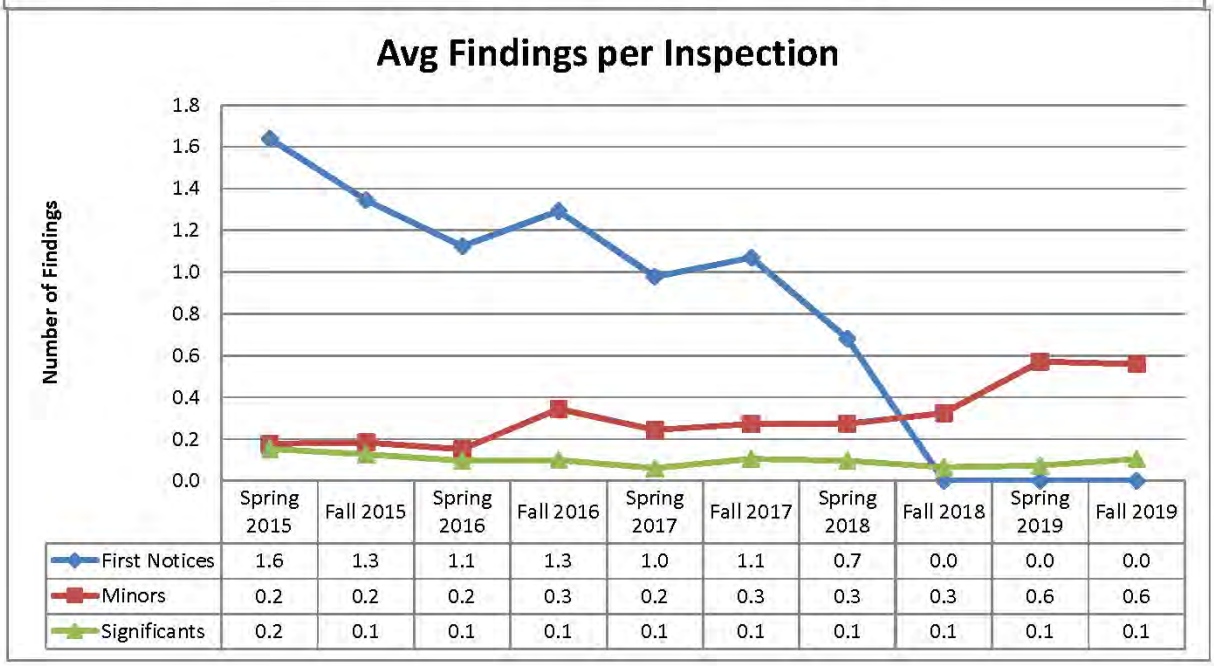
	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019
Total Findings-Standard	353	634	548	454	474	341	387	292	114	184	201
Total Inspections	317	322	331	331	273	266	275	278	293	287	286
No Findings	177	126	153	171	100	119	121	143	213	190	192
At least one finding	140	196	178	160	173	147	154	135	80	97	94



	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019
Total Inspections	322	331	331	273	266	275	278	293	287	286
First Notices	528	445	372	353	260	294	189	0	0	0
Minors	57	61	50	94	65	75	76	95	164	160
Significants	49	42	32	27	16	29	27	19	21	30

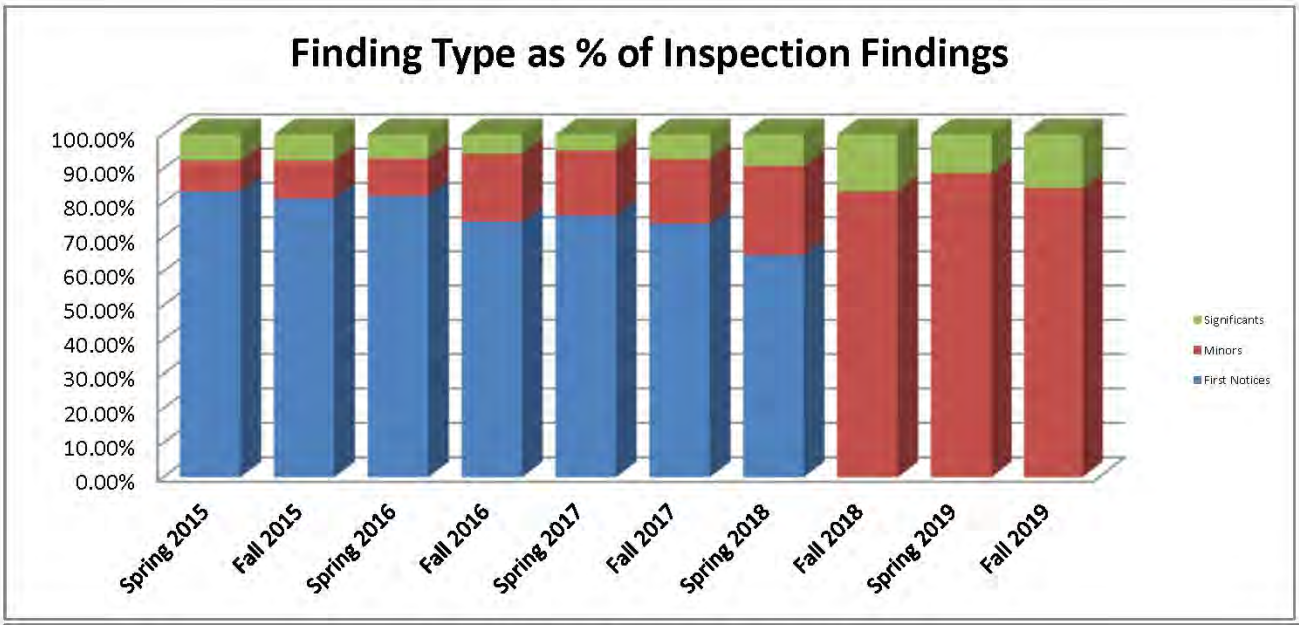
	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019
First Notices	1.6	1.3	1.1	1.3	1.0	1.1	0.7	0.0	0.0	0.0
Minors	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.6	0.6
Significants	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

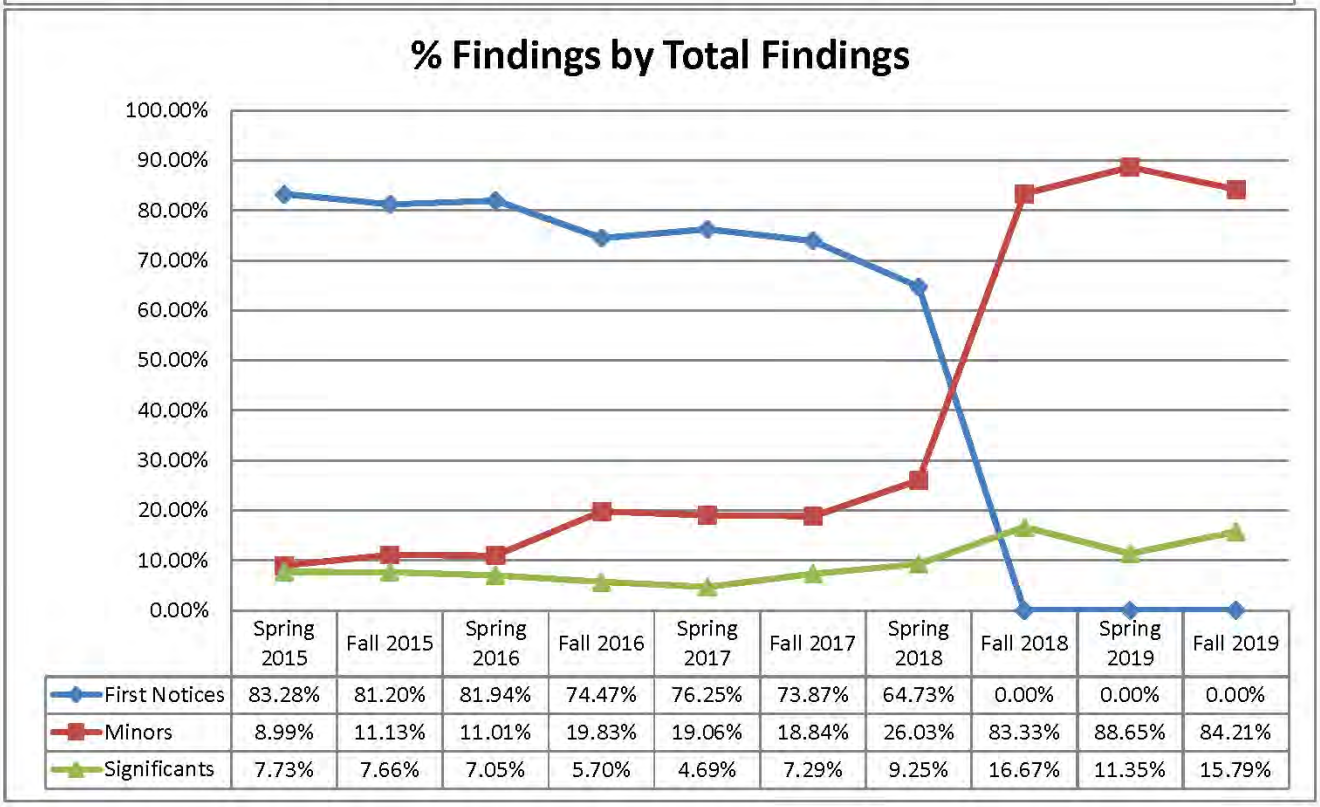




	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019
First Notices	1.6	1.3	1.1	1.3	1.0	1.1	0.7	0.0	0.0	0.0
Minors	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.6	0.6
Significants	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019
First Notices	83.28%	81.20%	81.94%	74.47%	76.25%	73.87%	64.73%	0.00%	0.00%	0.00%
Minors	8.99%	11.13%	11.01%	19.83%	19.06%	18.84%	26.03%	83.33%	88.65%	84.21%
Significants	7.73%	7.66%	7.05%	5.70%	4.69%	7.29%	9.25%	16.67%	11.35%	15.79%





	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019
First Notices	83.28%	81.20%	81.94%	74.47%	76.25%	73.87%	64.73%	0.00%	0.00%	0.00%
Minors	8.99%	11.13%	11.01%	19.83%	19.06%	18.84%	26.03%	83.33%	88.65%	84.21%
Significants	7.73%	7.66%	7.05%	5.70%	4.69%	7.29%	9.25%	16.67%	11.35%	15.79%

Fall 2019 Significant Findings Report									
Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type-DEHS, OHS, etc.	Deficiency * = reported to OLAW ** = repeat finding	Corrective Action	Completion Date	Inspectors
PAM	[redacted]	[redacted]	Christine Sivula	4/9/2019	IACUC	Last dose of Carprofen not given 12-24 hours as outlined in protocol	implementation of procedures so that when there are multiple early morning weekend treatments scheduled, the vet tech and on call veterinarian will confer on Friday to triage the cases for the weekend, ensuring critical treatments are completed in a timely manner	4/11/2019	Kristin Pilon
Self Report	[redacted]	***	Yi-Mei Yang	4/23/2019	IACUC	surgery performed on mice that is not approved in the protocol	cranial window implantation done to check that brain was not damaged by the viral infusion over time. This surgery will not be done further until an amendment is submitted and approved	4/23/2019	Self Report
Second Surgery Inspection	[redacted]	[redacted]	Demetri Yannopoulos	4/25/2019	IACUC	buprenorphine not given to seven pigs undergoing CPR procedures as outlined in protocol	buprenorphine will be given as outlined in study	4/26/2019	Kristin Pilon
PAM	[redacted]	[redacted]	Stephanie Goldschmidt	5/27/2019	IACUC	cats used as part of teaching protocol but species not approved	shelter was asked to only bring dogs, but occassionally brought cats and PI mistakenly thought protocol had approval for both; a new shelter is being used for animals and they will only supply dogs	5/29/2019	Kristin Pilon
Second Surgery Inspection	[redacted]	[redacted]	Samuel Dudley	5/29/2019	IACUC	SR buprenorphine not given two hours prior to surgery as outlined in protocol	PI will communicate with Pilar Guzman regarding the timing of SR-Bup prior to transmitter surgery so that analgesic will be given at proper time	6/4/2019	Paul Lindstrom
PAM	[redacted]	[redacted]	Jizhen Lin	5/31/2019	IACUC	bioluminescence imaging conducted on mice but anesthetic event not approved in protocol	further imaging will not be conducted until protocol has been amended to include IVIS imaging	6/3/2019	Paul Lindstrom

Fall 2019 Significant Findings Report									
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Self Report	[redacted]	[redacted]	David Masopust	6/10/2019	IACUC	personnel working with animals not listed as staff on protocol	person has been added to protocol	6/10/2019	Self Report
PAM		[redacted]	Michelle Willette	6/11/2019	IACUC	houses quail in raptor center but protocol not approved for housing	protocol will be renewed prior to next quail lab (September 2019) and IMHA information will be added at that time (no quail will be housed or used until protocol is renewed)	6/12/2019	Kristin Pilon
PAM		[redacted]	Michelle Willette	6/11/2019	IACUC	uses left over teaching quail as live prey for raptors	renewal protocol will be updated to include use of live quail as prey for raptors; no quail will be obtained or utilized until this change is made in renewal	6/12/2019	Kristin Pilon
PAM		[redacted]	Michael Farrar	6/11/19 and 6/25/19	IACUC	blood collection done but not approved on protocol*	amendment submitted for blood collection	6/25/2019	Ilana Cohen
PAM/Semi-annual		[redacted]	John Bishof	6/24/2019	IACUC	mice undergoing thermal therapy did not receive analgesics as outlined in the protocol (repeat finding)	amendment submitted making it clear that the thermal treatment is not a surgery and removing analgesics; RAR contacted for help in how to monitor animals after this procedure	7/9/2019	Paul Lindstrom and Georgiy Aslanidi
PAM/Semi-annual		[redacted]	John Bishof	6/24/2019	IACUC	mice euthanized by cervical dislocation without anesthetics but protocol states anesthetics will be used	amendment submitted requesting cervical dislocation without the use of anesthesia; will not be performed until amendment approved	7/9/2019	Paul Lindstrom and Georgiy Aslanidi
Ag		***	Kyle Rozeboom	6/25/2019	Ag	CO2 tank not secured	chained immediately by staff	6/25/2019	Paul Lindstrom and Scott Madill
Second Surgery/Semi-annual		[redacted]	Richard Bianco	6/27/2019	IACUC	eight sheep upderwent an additional balloon dilation surgical procedure that is not outlined in the protocol	amendment submitted fo additional dilatation procedure	6/28/2019	Kristin Pilon and Scott Madill

Fall 2019 Significant Findings Report									
Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type-DEHS, OHS, etc.	Deficiency * = reported to OLAW ** = repeat finding	Corrective Action	Completion Date	Inspectors
Outside Report of Non-Compliance	[redacted]	[redacted]	Walter Low	6/20/2019	IACUC	surgical procedures conducted on protocol that were not approved	staff will double check protocol prior to ordering animals to ensure proper protocol used	7/2/2019	Jennifer Borgert
Second Surgery Inspection		[redacted]	Andrew Grande	6/20/2019	IACUC	surgical procedure conducted on protocol that is not outlined in study	amendment submitted updating protocol with second surgical procedure	7/15/2019	Jennifer Borgert
PAM		[redacted]	Eric Newman	6/26/19 and 6/28/19	IACUC	anaglesics not given after electrolytic lesion surgery*	analgesics will be administered per protocol	7/1/2019	Megan McCoy
PAM		[redacted]	Michael Smanski	7/18/2019	IACUC	anesthetic procedure not approved in protocol	amendment will be submitted adding anesthetic procedure; procedure will not be performed until approved	7/19/2019	Paul Lindstrom
PAM		[redacted]	Clark Chen	7/11/19 and 7/16/19	IACUC	housing animals without approval	amendment submitted requesting IMHA housing; animals will not be housed until amendment approved	7/19/2019	Jennifer Borgert
PAM		[redacted]	Nicola Grissom	7/24/2019	IACUC	Second dose of carprofen given upwards of 29-30 hours after initial dose	going forward, lab will ensure that mice have administration of carprofen within a span of 24 hours or less	7/26/2019	Kristin Pilon
Self Report		[redacted]	Walter Low	7/22/2019	IACUC	animals housed in laboratory over 24 hours without approval	will amend the protocol for housing of animals over 24 hours in lab to acclimate rats to behavioral tests	7/22/2019	Self Report
PAM		[redacted]	Aaron LeBeau	8/13/2019	IACUC	housing of animals without approval in protocol	protocol will be updated with IMHA information	8/21/2019	Ilana Cohen
PAM		[redacted]	Aaron LeBeau	8/13/2019	IACUC	care not given to animals that were housed in IMHA for up to six days	going forward, lab will perform all animal care when IMHA is in use	8/21/2019	Ilana Cohen
PAM		[redacted]	Aaron LeBeau	8/13/2019	IACUC	bioluminescence imaging conducted but no longer approved on protocol as PI removed this procedure through an amendment	imaging procedure was accidently removed from protocol; amendment will be submitted adding procedure back	8/21/2019	Ilana Cohen

Fall 2019 Significant Findings Report									
Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type-DEHS, OHS, etc.	Deficiency * = reported to OLAW ** = repeat finding	Corrective Action	Completion Date	Inspectors
Initial Surgery Inspection	[redacted]	[redacted]	John Osborn	8/13/2019	IACUC	mice that wereundergoing non-survival surgery did not receive the pre-operative dose of Meloxicam as stated in the protocol (repeat finding)*	amendment submitted requesting removal of meloxicam from the acute procedure	8/15/2019	Paul Lindstrom
PAM		[redacted]	Phu Tran	8/20/2019	IACUC	SR buprenorphine not given for carotid artery ligation surgeries as outlined in protocol (repeat finding)	going forward, SR buprenorphine will be given as outlined in protocol	8/27/2019	Ilana Cohen
PAM		[redacted]	Swati More	8/20/2019	IACUC	expired Xylazine in use	new xylazine purchased	8/22/2019	Paul Lindstrom
PAM		[redacted]	Kaylee Schwertfeger	8/23/2019	IACUC	animals underwent retro-orbital IV adminsitration of BM while under Isoflurane but anesthetic procedure not approved in protocol*	amendment submitted clarifying that bone marrow will be adminitered tail vein or retro-orbital vein, and retro-orbital administration will be done under isoflurane	8/30/2019	Megan McCoy
PAM		[redacted]	Sarah Greising	8/27/2019	IACUC	SR buprenorphine not given at time that as outlined in protocol*	going forward, SR-Buprenorphine will be given 2-4 hours prior to surgery as outlined in the protocol	9/3/2019	Kristin Pilon
PAM		[redacted]	Sarah Greising	8/27/2019	IACUC	animals undergo anesthetic procedure to remove tissue prior to euthanasia that is not outlined in protocol*	amendments submitted adding procedure to protocols	9/3/2019	Kristin Pilon
Second Surgery Inspection		[redacted]	R. Scott McIvor	8/27/2019	IACUC	analgesic not given per timing that is approved in protocol*	going forward, all staff will administer analgesic according to timing approved in protocol	9/6/2019	Megan McCoy

Fall 2019 Significant Findings Report									
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PAM	[redacted]	[redacted]	Yingjie Chen	9/4/2019	IACUC	SR buprenoprhine not given 2-3 hours prior to surgery	giving SR-Buprenorphine before the surgery negatively affected the survival rate; thus an amendment will be submitted amending the timing of analgesic administration; no surgery will be performed until amendment has been submitted and approved	9/5/2019	Jennifer Borgert
PAM		[redacted]	Michael Benneyworth	9/16/2019	IACUC	anaglesic given upwards of 29-30 hours aftter initial dose, thus resulting in a time frame where pain was not managed	lab amended SOP such that analgesics will now be administered in the morning making sure the time is less than 24 hours between doses	9/19/2019	Kristin Pilon
PAM		[redacted]	Linda McLoon	9/24/2019	IACUC	SR buprenoprhine not given 2-4 hours prior to surgery as outlined in protocol	Going forward, SR-Buprenorphine will be given at least 2 hours prior to surgery	9/30/2019	Jennifer Borgert
Self Report		***	[redacted]	9/16/2019	IACUC	one NHP received less than the miniumum water allotment due to transcription error	water allotment corrected and vet contacted to assess animal	9/30/2019	Self Report

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
Ag	[redacted]	[redacted]	Alfredo DiCostanzo	5/10/2019	Ag	Disaster plan overdue for review	disaster plan updated	5/13/2019	Paul Lindstrom	Ag
Ag		[redacted]	Alfredo DiCostanzo	5/10/2019	Ag	some entries for medical issues did not have resolution	animal care records updated	5/13/2019	Paul Lindstrom	Ag
Ag		***	Dan Braaten	5/30/2019	Ag	hay bails used for feeding stored next to random equipment and gas can	hay bales had been moved during spring cleaning and have now been moved back to their normal storage location at the opposite end of the barn; the gas can has also been moved to the storage barn	6/4/2019	Kristin Pilon and Dan Montonye	Ag
Ag		***	Wayne Martin	6/21/2019	Ag	feed storage area in St. Paul Poultry Facilities had bags of chicken feed stored on a pallet but pushed up against the wall	feed pallets moved away from the wall	7/16/2019	Jennifer Borgert and Jen Hubbard	Ag

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
Ag	[redacted]	***	Wayne Martin	6/21/2019	Ag	disaster plan overdue for review	disaster plan reviewed and cover sheet updated	7/26/2019	Jennifer Borgert and Jen Hubbard	Ag
Ag	[redacted]	***	Wayne Martin	6/21/2019	Ag	hutch doors are not locked during the day causing them to be slightly ajar; to prevent escapes, please secure the doors in the day too	chicken hutch doors will now be locked during the day	7/16/2019	Jennifer Borgert and Jen Hubbard	Ag
Semi-annual	[redacted]	[redacted]	[redacted]	4/10/2019	IACUC	baggies of soaked primate biscuits were observed that were not labeled with the contents or date of preparation	A system for labeling soaked biscuits, including contents and date prepared, has been put in place	4/29/2019	Melanie Graham and Brian Crooker	Husbandry
Semi-annual	[redacted]	[redacted]	Jennifer Erickson	6/25/2019	IACUC	mill/fill dates either missing or not clearly marked on food containers	mill/fill dates will now be recorded on a laminated card placed in a cage card holder to prevent writing from being smudged	7/3/2019	Kristin Pilon and Geoff Ghose	Husbandry

Fall 2019 Minor Findings Report										
Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
Semi-annual	[redacted]	[redacted]	Jennifer Erickson	6/25/2019	IACUC	needs to clean broom in 1-118	upon further inspection broom not dirty but worn from repeated use	7/14/2019	Kristin Pilon and Geoff Ghose	Husbandry
Semi-annual		[redacted]	Przemyslaw Bajer	7/26/2019	IACUC	containers of fish food in refrigerator had no expiration or fill dates	fish food containers have been labeled	8/15/2019	Paul Lindstrom and Mimie Pollard	Husbandry
Semi-annual		[redacted]	Nicholas Phelps	7/26/2019	IACUC	containers of fish food in refrigerator had no expiration or fill dates	containers are now clearly labeled	8/14/2019	Paul Lindstrom and Mimie Pollard	Husbandry
Semi-annual		[redacted]	Emilyn Alejandro	8/6/2019	IACUC	tape used to secure cage cards to caging	staff will now use regular, pre-ordered RAR cage cards which should fit into the cage card holders	8/26/2019	Kristin Pilon and Laura Hocum Stone	Husbandry

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc.	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
Semi-annual	[redacted]	[redacted]	John Osborn	8/6/2019	IACUC	microbiological testing not done on caging equipment that is washed by staff	going forward either RAR will clean the cages or microbial testing will be done	8/8/2019	Kristin Pilon and Laura Hocum Stone	Husbandry
Semi-annual	[redacted]	[redacted]	John Osborn	8/6/2019	IACUC	tape used to secure black bag to outside of cage which leaves residue	a different method will be used to hold bags on in the future	8/8/2019	Kristin Pilon and Laura Hocum Stone	Husbandry
PAM/Semi-annual	[redacted]	[redacted]	Marija Cventanovic	8/19/2019	IACUC	temperature and humidity out of range in housing area so gave permission to house in temp/humidity controlled building. Needs to add this space as part of IMHA	amendment submitted adding alternative IMHA location	9/4/2019	Kristin Pilon and [redacted]	Husbandry
PAM/Semi-annual	[redacted]	Building [redacted]	Marija Cventanovic	8/19/2019	IACUC	rodent control not in place	live traps will be purchased, baited and placed in rooms during housing of any species	9/4/2019	Kristin Pilon and [redacted]	Husbandry

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM/Semi-annual	[redacted]	Building [redacted]	Marija Cventanovic	8/19/2019	IACUC	food not labeled with mill/fill dates	containers with animal food will be labeled with mill date of the food	9/4/1949	Kristin Pilon and [redacted]	Husbandry
PAM/Semi-annual		[redacted]	Tay Netoff	8/22/2019	IACUC	rodent trap should be picked up when animals are not housed as it was not monitored	rodent traps are being placed in a bag in the cabinet when animals are not housed	9/4/2019	Kristin Pilon and Peggy Norris	Husbandry
Semi-annual		[redacted]	Jennifer Erickson	9/26/2019	IACUC	one of the fence rails in paddock is loose and should be repaired	FM contacted and loose fence rail repaired on 9/27/19	9/27/2019	Ilana Cohen and Sally Noll	Husbandry
PAM/Semi-annual		[redacted]	Patrick Rothwell	9/30/2019	IACUC	microbiological testing needs to be done on new home cage chambers	Jessica Rugg will be contacted to obtain sample kits and IMHA section will be updated to include these chambers and disinfection process	10/8/2019	Kristin Pilon and Liz Pluhar	Husbandry

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc.	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM	[redacted]	[redacted]	Keith Vossel	4/15/2019	IACUC	sutures not removed from animals after surgery	going forward, absorbable sutures will be used and/or sutures will be removed in 7-14 days	4/22/2019	Megan McCoy	IPNF
Semi-annual		[redacted]	Zigang Dong	5/15/2019	IACUC	food and water had been pulled for stress induction but no time was noted on the caging or in the room as to when this food/water has been pulled so that staff could determine length of deprivation	going forward, time of food/water removal will be noted on the whiteboard in the housing room	5/20/2019	Kristin Pilon and Felicia Boynton	IPNF
Second Surgery Inspection		[redacted]	Sade Spencer	5/14/2019	IACUC	decapitation log not kept up to date	decapitation log has been updated using sacrifice records; [redacted] machine shop will be used to sharpen guillotine blade as needed and log maintained	5/21/2019	Kristin Pilon	IPNF
PAM		[redacted]	James Ervasti	5/22/2019	IACUC	SOP not available for the cleaning/disinfection of behavioral equipment	cleaning SOP drafted and staff trained on procedure	5/30/2019	Megan McCoy	IPNF
PAM		[redacted]	Ann Parr	5/29/2019	IACUC	anesthetic vaporizer overdue for inspection	vaporizer has been inspected	6/4/2019	Megan McCoy	IPNF

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc.	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM/Semi-annual	[redacted]	[redacted]	Jennifer Menken	6/17/2019	IACUC	disaster plan overdue for review	disaster plan has been updated	7/13/2019	Megan McCoy and Marilyn Bennett	IPNF
Second Surgery/Semi-annual		[redacted]	Gufa Lin	6/19/2019	IACUC	barrier not used in between animal and cage bedding when recovering them from anesthesia	autoclaved paper towels will be placed between the animal and cage bedding	6/20/2019	Kristin Pilon and Sara Hashway	IPNF
Second Surgery/Semi-annual		[redacted]	Gufa Lin	6/19/2019	IACUC	uses distilled water for injection	injectable PBS will be used to dilute	6/20/2019	Kristin Pilon and Sara Hashway	IPNF
Second Surgery/Semi-annual		[redacted]	Gufa Lin	6/19/2019	IACUC	sterile container not used for storing diluted solutions used in animals	drugs will be stored in recommended containers	6/20/2019	Kristin Pilon and Sara Hashway	IPNF
PAM/Semi-annual		[redacted]	John Bishof	6/24/2019	IACUC	disaster plan overdue for review	disaster plan has been updated	6/26/2019	Paul Lindstrom and Georgiy Aslanidi	IPNF

Fall 2019 Minor Findings Report										
Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc.	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM/Semi-annual	[redacted]	[redacted]	Brendan Dougherty	6/20/2019	IACUC	disaster plan overdue for review	disaster plan reviewed and cover sheet updated	7/10/2019	Kristin Pilon and Henry Wong	IPNF
PAM/Semi-annual		[redacted]	Brendan Dougherty	6/20/2019	IACUC	Carprofen only given 2 days post-op instead of required 3	post-operative records updated to include another day of Carprofen administration	7/10/2019	Kristin Pilon and Henry Wong	IPNF
PAM		[redacted]	James Lokensgard	6/25/2019	IACUC	breeding colony records not kept	breeding spreadsheet created	6/28/2019	Ilana Cohen	IPNF
PAM		[redacted]	James Lokensgard	6/25/2019	IACUC	log not kept of maintenance and usage of decapitation equipment	decapitation log created	6/28/2019	Ilana Cohen	IPNF
PAM		[redacted]	James Lokensgard	6/25/2019	IACUC	SOP not available for cleaning/disinfection of behavioral equipment	behavioral equipment cleaning SOP created	6/28/2019	Ilana Cohen	IPNf

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Semi-annual	[redacted]	[redacted]	Jennifer Erickson	6/25/2019	IACUC	treatment cards do not have monitoring plan listed so cannot tell how long or how often animals are monitored	According to RAR SOP rodents being monitored require rounds once per week; the inspection occurred on a Tuesday leaving the rest of the week for rounds to be completed; if more or less frequent checks are required (differing from standard SOP), that would be indicated on the vet plan card	7/14/2019	Kristin Pilon and Geoff Ghose	IPNF
Semi-annual		[redacted]	Dawn Lowe	6/25/2019	IACUC	single housing of female mice without exception in place	amendment submitted for both protocols adding justification for single housing	7/11/2019	Kristin Pilon and Geoff Ghose	IPNF
Self Report		***	Ned Patterson	6/28/2018	IACUC	lapse in monitoring documentation for a dog that developed vestibular disease	PI will ensure consistent and appropriate documentation; will inform Dr. Boynton of any medical issues that come up and plan will be documented in the book in the dog	6/28/2019	Self Report	IPNF

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PAM	[redacted]	[redacted]	Xavier Revelo	7/8/2019	IACUC	non-pharmaceutical grade glucose used	pharmaceutical grade glucose will be used	7/16/2019	Kristin Pilon	IPNF
PAM		[redacted]	Xavier Revelo	7/8/2019	IACUC	SOP not in place for cleaning/disinfection of behavioral equipment	SOP is now in place of cleaning/disinfection of behavioral equipment; all staff have been trained	7/16/2019	Kristin Pilon	IPNF
PAM		[redacted]	Jesse Williams	7/10/2019	IACUC	No flow meter on CO2 used for euthanasia	Ed Craig contacted to install and calibrate new flow meter; new custom lid designed for chamber and signage posted	7/25/2019	Kristin Pilon	IPNF
Semi-annual		[redacted]	Marc Schwabenlander	7/18/2019	IACUC	non-pharmaceutical grade xylazine used	pharmaceutical grade xylazine ordered from vendor and will be used going forward	8/24/2019	Jennifer Borgert and Scott Madill	IPNF

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Semi-annual	[redacted]	[redacted]	[redacted]	7/23/2019	IACUC	some wooden ramps/pieces for the old animal chair/restraint systems were full of mold and smelled of urine and should be disposed	all wood items associated with the NHP chair immobilization equipment will be disposed; the plastic platforms may be used again, but the corroded feet will be removed and discarded	7/25/2019	Paul Lindstrom and Melanie Graham	IPNF
Second Surgery/Semi-annual		[redacted]	Ben Hayden	7/24/2019	IACUC	paint used in open field cage is peeling in areas of stress (door entry) and on items animals come into contact (barrels)	door repaired and will be monitoring for peeling paint; new barrels have been ordered to replace those with chipped paint	8/8/2019	Kristin Pilon and Melanie Graham	IPNF
PAM/Semi-annual		[redacted]	Marija Cventanovic	8/19/2019	IACUC	Styrofoam container used as euthanasia chamber	non-porous plastic container will be purchased for use as euthanasia chamber	9/4/2019	Kristin Pilon and [redacted]	IPNF
PAM/Semi-annual		[redacted]	Marija Cventanovic	8/19/2019	IACUC	housing space did not have disaster plan, IMHA information, or how to report animal concern signage	disaster plan, IMHA information and information on how to report animal welfare concerns will be posted	9/4/1949	Kristin Pilon and [redacted]	IPNF

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PAM/Semi-annual	[redacted]	[redacted]	Suzanne McGaugh	8/16/2019	IACUC	disaster plan overdue for review	disaster plan has been reviewed	8/27/2019	Jennifer Borgert and Marilyn Bennett	IPNF
PAM/Semi-annual		[redacted]	Mark Desrosiers	8/20/2019	IACUC	staff could not access protocol and protocol not in lab	protocol has been printed and placed in binder	9/5/2019	Jennifer Borgert and Keith Barker	IPNF
PAM/Semi-annual		[redacted]	Tay Netoff	8/22/2019	IACUC	non-pharmaceutical grade glue used to cement electrode to skull	pharm/vet grade 3M Vetbond will be used going forward	9/4/2019	Kristin Pilon and Peggy Norris	IPNF
PAM		[redacted]	Sarah Greising	8/27/2019	IACUC	vaporizer overdue for calibration	appointment made; calibration will be done on 9/4/19	9/3/2019	Kristin Pilon	IPNF
PAM		[redacted]	Sarah Greising	8/27/2019	IACUC	needs cleaning/disinfection SOP for behavioral equipment	lab now has dedicated SOP for cleaning behavioral cages; SOP posted in animal housing room and in protocol binder	9/3/2019	Kristin Pilon	IPNF

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Semi-annual	[redacted]	***	Melissa Palmer	8/22/2019	IACUC	pieces of information missing from housing area	emergency plan and emergency contact information will be posted; animal reporting info will also be posted	9/12/2019	Kristin Pilon and Peggy Norris	IPNF
PAM		[redacted]	Erik Finger	8/29/2019	IACUC	vaporizer overdue for calibration	calibration service scheduled	9/17/2019	Kristin Pilon	IPNF
PAM		[redacted]	Atsushi Asakura	8/30/2019	IACUC	SOP not available for cleaning and disinfection of behavioral equipment	SOP has been created	9/5/2019	Jennifer Borgert	IPNF
PAM		[redacted]	Hongbo Pang	9/9/2019	IACUC	pH of Avertin not taken prior to injection	going forward, pH will be measured prior to injection	9/17/2019	Kristin Pilon	IPNF
PAM		[redacted]	Robert Cormier	9/18/2019	IACUC	non-pharmaceutical grade Carprofen used	pharmaceutical grade carprofen has been ordered and will be used going forward	9/19/2019	Paul Lindstrom	IPNF

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Semi-annual	[redacted]	[redacted]	Thomas Hrabik	9/18/2019	IACUC	disaster plan overdue for review	disaster plan reviewed and new cover sheet attached	9/27/2019	Kristin Pilon and Felicia Boynton	IPNF
PAM		[redacted]	Linda McLoon	9/24/2019	IACUC	SOP not available for cleaning/disinfection of behavioral equipment	SOP will be posted in behavior area and staff trained	9/30/2019	Jennifer Borgert	IPNF
Second Surgery/Semi-annual		[redacted]	Timothy Ebner	9/26/2019	IACUC	vaporizer overdue for inspection	vaporizer calibration scheduled; will not be used until calibration complete	9/27/2019	Paul Lindstrom and Christine Sivula	IPNF
PAM/Semi-annual		[redacted]	Patrick Rothwell	9/30/2019	IACUC	food container in IMHA not labeled with mill/fill date	food container discarded; going forward all food containers will be labeled appropriately	10/8/2019	Kristin Pilon and Liz Pluhar	IPNF

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PAM	[redacted]	[redacted]	Lucy Vulchanova	9/27/2019	IACUC	eye ointment not used for SNI surgeries	eye ointment will be used	10/13/2019	Ilana Cohen	IPNF
Initial Surgery Inspection		[redacted]	Harry Orr	6/12/2019	IACUC	sutures not removed following ICV injection surgery	amendment submitted to add anesthetic procedure to remove sutures	6/20/2019	Ilana Cohen	IPNF
PAM		[redacted]	Clark Chen	7/11/19 and 7/16/19	IACUC	person performing surgery not listed as surgeon on protocol	amendment submitted adding surgeon	7/19/2019	Jennifer Borgert	IPNF
PAM		[redacted]	Jizhen Lin	5/31/2019	IACUC	records not found for anesthetic procedures conducted on animals	anesthetic events are recorded, but records have not been kept; going forward, records will be kept and added to binder for storage	6/3/2019	Paul Lindstrom	IPNF-Anesthetic Records
PAM		[redacted]	James Lokensgard	6/25/2019	IACUC	anesthetic record not kept for imaging procedures	anesthetic records kept	6/28/2019	Ilana Cohen	IPNF-Anesthetic Records

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PAM	[redacted]	[redacted]	Clark Chen	7/11/19 and 7/16/19	IACUC	anesthetic records not kept for imaging procedures	going forward, anesthetic records will be kept	7/18/2019	Jennifer Borgert	IPNF-Anesthetic Records
PAM		[redacted]	Zohar Sachs	8/13/2019	IACUC	anesthetic records not kept	going forward, anesthetic records will be kept using the template provided	8/19/2019	Paul Lindstrom	IPNF-Anesthetic Records
PAM/Semi-annual		[redacted]	Marija Cventanovic	8/19/2019	IACUC	no anesthetic records in place	going forward, anesthetic records will be kept using the template provided	9/4/1949	Kristin Pilon and [redacted]	IPNF-Anesthetic Records
PAM		[redacted]	Dale Gregerson	9/5/2019	IACUC	anesthetic records not kept	anesthetic records will be kept using the form provided	9/12/2019	Ilana Cohen	IPNF-Anesthetic Records
PAM		[redacted]	Yingjie Chen	9/4/2019	IACUC	anesthetic records not kept	records will be kept in the lab going forward	9/5/2019	Jennifer Borgert	IPNF-Anesthetic Records

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PAM	[redacted]	[redacted]	Linda McLoon	9/24/2019	IACUC	anesthetic records not kept	anesthetic records will be kept going forward	9/30/2019	Jennifer Borgert	IPNF-Anesthetic Records
PAM		***	Yibin Deng	5/15/2019	IACUC	animals not shaved prior to survival surgery procedure	in the future, hair will be removed from incision site by shaving or depilatory cream	5/28/2019	Paul Lindstrom	IPNF-Aseptic Technique
Second Surgery/Semi-annual		[redacted]	Gufa Lin	6/19/2019	IACUC	autoclaved material not labeled as to sterilization date	date will be recorded on the autoclaved materials	6/20/2019	Kristin Pilon and Sara Hashway	IPNF-Aseptic Technique
Second Surgery/Semi-annual		[redacted]	Richard Bianco	6/27/2019	IACUC	crack in floor of OR that needs to be filled	floor to be repaired by 11/15/19	10/14/2019	Kristin Pilon and Scott Madill	IPNF-Aseptic Technique
PAM		[redacted]	Paolo Provenzano	6/27/2019	IACUC	surgical mask and hair covering not worn during survival surgeries	mask and hair covering will be worn for survival surgery	7/1/2019	Jennifer Borgert	IPNF-Aseptic Technique

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Self Report	[redacted]	***	Yibin Deng	7/8/2019	IACUC	fur not shaved from animals prior to implantation of tumor (repeat finding)	fur will be removed going forward	7/8/2019	Self Report	IPNF-Aseptic Technique
PAM		[redacted]	Nicola Grissom	7/24/2019	IACUC	surgical instruments not completely sterilized prior to use	all surgical equipment will be sterilized prior to surgery	7/26/2019	Kristin Pilon	IPNF-Aseptic Technique
PAM		[redacted]	Nicola Grissom	7/24/2019	IACUC	hair covering not worn during surgical procedures	hair covering will used during surgeries	7/26/2019	Kristin Pilon	IPNF-Aseptic Technique
PAM		[redacted]	Kaylee Schwertfeger	8/23/2019	IACUC	face mask not worn during surgical procedures	going forward, a face mask will be worn for surgical procedures	8/30/2019	Megan McCoy	IPNF-Aseptic Technique
PAM		[redacted]	Yingjie Chen	9/4/2019	IACUC	face mask not worn during surgical procedures	going forward, face mask will be used	9/5/2019	Jennifer Borgert	IPNF-Aseptic Technique

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PAM	[redacted]	[redacted]	Robert Cormier	9/18/2019	IACUC	hair covering not worn during surgical procedures	a hair net will be used going forward	9/19/2019	Paul Lindstrom	IPNF-Aseptic Technique
PAM		[redacted]	Linda McLoon	9/24/2019	IACUC	hair covering not worn during surgical procedures	going forward, hair covering will be worn	9/30/2019	Jennifer Borgert	IPNF-Aseptic Technique
PAM		[redacted]	Linda McLoon	9/24/2019	IACUC	surgical instruments not completely sterilized prior to surgery	all instruments will autoclave sterilized going forward	9/30/2019	Jennifer Borgert	IPNF-Aseptic Technique
PAM		[redacted]	Lucy Vulchanova	9/27/2019	IACUC	sterile gloves expired	new sterile gloves have been purchased	10/13/2019	Ilana Cohen	IPNF-Aseptic Technique
Semi-annual		[redacted]	Jennifer Erickson	4/23/2019	IACUC	expired Accel cleaner in [redacted]	expired solution discarded and replaced with solution prepared and dated on 4/23/19	5/1/2019	Ilana Cohen and Laura Hocum-Stone	IPNF-Expired Items

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Semi-annual	[redacted]	[redacted]	Marc Schwabenlander	7/18/2019	IACUC	expired betadine scrub pad in exposure kit	new betadine scrub pads have been placed in the NHP kit	8/24/2019	Jennifer Borgert and Scott Madill	IPNF-Expired Items
Semi-annual	[redacted]	[redacted]	Michael Smanski	7/26/2019	IACUC	expired vials of Ovaprim	expired vials will be discarded and replaced with new	7/29/2019	Paul Lindstrom and Mimie Pollard	IPNF-Expired Items
PAM	[redacted]	[redacted]	Masato Yamamoto	7/22/2019	IACUC	surgical gloves expired but in use	expired gloves disposed and will be replaced	8/1/2019	Jennifer Borgert	IPNF-Expired Items
PAM	[redacted]	***	Yibin Deng	5/15/2019	IACUC	no personnel training records for newest members of laboratory working with animals	training records will be completed for new lab staff members	5/28/2019	Paul Lindstrom	IPNF-Personnel Training Records
Second Surgery Inspection	[redacted]	[redacted]	Jakub Tolar	6/12/2019	IACUC	No training records for new employee	Training records for Courtney Popp added to binder	6/14/2019	Jennifer Borgert	IPNF-Personnel Training Records

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Second Surgery Inspection	[redacted]	[redacted]	Andrew Grande	6/20/2019	IACUC	training record for surgeon not available	training record submitted	6/27/2019	Jennifer Borgert	IPNF-Personnel Training Records
PAM		[redacted]	Michael Smanski	7/18/2019	IACUC	personnel training record detailing protocol specific procedures not available	records will be kept using template	7/19/2019	Paul Lindstrom	IPNF-Personnel Training Records
Second Surgery Inspection		[redacted]	David Bereiter	7/23/2019	IACUC	procedure training record missing for new employee	training documented and filed for new employee	8/13/2019	Ilana Cohen	IPNF-Personnel Training Records
PAM		[redacted]	Aaron LeBeau	8/13/2019	IACUC	no personnel training records kept for any of the new staff in the laboratory	training template filled out for each member of the lab and records now stored in the lab	8/21/2019	Ilana Cohen	IPNF-Personnel Training Records
PAM		[redacted]	Christopher Pennell	8/16/2019	IACUC	limited personnel training records	training records completed using template provided; records available in lab	9/12/2019	Megan McCoy	IPNF-Personnel Training Records

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PAM/Semi-annual	[redacted]	[redacted]	Mark Desrosiers	8/20/2019	IACUC	personnel training records not present	training documentation placed in binder	9/5/2019	Jenifer Borgert and Keith Barker	IPNF-Personnel Training Records
PAM		[redacted]	Kakambi Nagaraja	8/21/2019	IACUC	personnel training records not present (repeat finding)	training records will be kept using template provided	9/11/2019	Kristin Pilon	IPNF-Personnel Training Records
PAM		[redacted]	Hongbo Pang	9/9/2019	IACUC	Personnel training records not kept	training records created and uploaded to protocol	9/17/2019	Kristin Pilon	IPNF-Personnel Training Records
PAM		[redacted]	Lucy Vulchanova	9/27/2019	IACUC	personnel training records missing for new staff member	training records for new staff have been created; going forward new staff training records will be created immediately	10/13/2019	Ilana Cohen	IPNF-Personnel Training Records
Second Surgery Inspection		[redacted]	Wei Chen	5/23/2019	IACUC	noted that p.o records kept on cage cards for rats undergoing survival surgery but cards not permanently kept	Post op records will now be kept	5/29/2019	Jennifer Borgert	IPNF-Surgical Records

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Second Surgery/Semi-annual	[redacted]	[redacted]	Gufa Lin	6/19/2019	IACUC	only keeps one day of post operative monitoring for frog/axolotl surgeries	three days of post-operative records will be kept	6/20/2019	Kristin Pilon and Sara Hashway	IPNF-Surgical Records
PAM		[redacted]	Eric Newman	6/26/19 and 6/28/19	IACUC	post operative records not kept for last batch of surgeries	post operative records will be kept	7/1/2019	Megan McCoy	IPNF-Surgical Records
PAM		[redacted]	Clark Chen	7/11/19 and 7/16/19	IACUC	no post-operative records kept for surgical procedures	going forward, post-op records will be kept for all surgeries	7/18/2019	Jennifer Borgert	IPNF-Surgical Records
Initial Surgery Inspection		[redacted]	Jop Van Berlo	7/22/2019	IACUC	three days of post operative records not always kept	PI will retrain lab staff regarding proper record keeping procedures to ensure full compliance	8/2/2019	Kristin Pilon	IPNF-Surgical Records

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Initial Surgery Inspection	[redacted]	[redacted]	Jop Van Berlo	7/22/2019	IACUC	myocardial infarction surgeries performed on 6/25 did not indicate analgesics were given as no documentation in surgical or controlled substance records	PI will retrain lab staff regarding proper record keeping procedures to ensure full compliance	8/2/2019	Kristin Pilon	IPNF-Surgical Records
Second Surgery Inspection		[redacted]	Emilyn Alejandro	9/6/2019	IACUC	needs to add the use of Lidocaine to surgical procedures	amendment submited adding lidocaine to protocol	10/3/2019	Megan McCoy	IPNF-Surgical Records
PAM		[redacted]	Lucy Vulchanova	9/27/2019	IACUC	no surgical records for non-survival mouse spinal cord exposure surgeries	going forward, surgical records will be kept for all non-survival surgeries	10/13/2019	Ilana Cohen	IPNF-Surgical Records
PAM/Semi-annual		[redacted]	Marija Cventanovic	8/19/2019	OHS	personnel dumping cage bedding without proper PPE	personnel dumping cage bedding will contact Respiratory protection program	9/7/2019	Kristin Pilon and [redacted]	OHS

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PAM	[redacted]	[redacted]	Sarah Greising	8/27/2019	OHS	staff dump bedding from physical/metabolic caging	staff performing this function are now enrolled in the Respiratory Protection Program	9/3/2019	Kristin Pilon	OHS
PAM/Semi-annual		[redacted]	Patrick Rothwell	9/30/2019	OHS	staff dumping bedding without proper PPE	Staff will dump bedding in a fume hood; if not deemed sufficient, RPP will be contacted for further evaluation	10/8/2019	Kristin Pilon and Liz Pluhar	OHS
Self Report		[redacted]	Jizhen Lin	4/18/2019	IACUC	endpoints of study not followed	lab is to consult with area veterinarian to view the animals and confirm that the tumor load is not beyond endpoint criteria	4/18/2019	Self Report	PNF
PAM/Semi-annual		[redacted]	Gail Boe	4/29/2019	IACUC	fish are sometimes adopted out but endpoint not approved	amendment submitted adding adoption as an endpoint for the fish	5/9/2019	Kristin Pilon and Christine Sivula	PNF
PAM		[redacted]	David Masopust	4/26/2019	IACUC	Avertin not approved for use for one procedure in protocol	amendment submitted adding avertin	5/7/2019	Megan McCoy	PNF

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Second Surgery Inspection	[redacted]	[redacted]	Tim Starr	5/1/2019	IACUC	needs to give one more day of analgesic coverage; considered day 1 day of surgery instead of day 0	one additional dose of ketoprofen will be given to cover 3 full days	5/2/2019	Ilana Cohen	PNF
Second Surgery Inspection		[redacted]	Tim Starr	5/1/2019	IACUC	staff conducting surgeries but not listed as surgeon on protocol	amendment submitted adding surgeon	5/2/2019	Ilana Cohen	PNF
Self Report		[redacted]	Mark Herzberg	4/16/2019	IACUC	euthanasia method not followed as per approved protocol	amendment submitted to add perfusion as an approved method of euthanasia for future experiments	4/16/2019	Self Report	PNF
Second Surgery Inspection		[redacted]	Sade Spencer	5/14/2019	IACUC	xylocaine used as topical anesthetic for intracranial surgeries but not outlined for procedures	amendment submitted adding xylocaine	5/21/2019	Kristin Pilon	PNF
PAM		[redacted]	Stephanie Goldschmidt	5/27/2019	IACUC	anesthetics used on dogs but not approved on protocol	protocol will be amended to include all anesthetics used	5/29/2019	Kristin Pilon	PNF

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Second Surgery Inspection	[redacted]	[redacted]	Samuel Dudley	5/29/2019	IACUC	person performing surgery not listed as surgeon in protocol	amendment submitted to add surgeon	6/27/2019	Paul Lindstrom	PNF
PAM		[redacted]	Jizhen Lin	5/31/2019	IACUC	uses colon cancer /ovarian cells but only approved for melanoma and breast cancer cells	cell lines will be added to protocol; no work on cell lines will be done until amendment approved	6/3/2019	Paul Lindstrom	PNF
PAM		[redacted]	Tyler Bold	6/17/2019	IACUC	endpoints of study not followed	amendment submitted extending endpoints	7/11/2019	Kristin Pilon	PNF
PAM		[redacted]	Walter Low	6/18/2019	IACUC	mice receive 1 million cells but only approved for 100,000; cells given 2-4 days later but protocol reads that they should be given 24-48 hours later	amendment submitted to increase number of cells and route of administration	7/1/2019	Paul Lindstrom	PNF
PAM		[redacted]	Walter Low	6/18/2019	IACUC	behavioral tests conducted that are not listed in the protocol	amendment submitted to add additional behavioral tests	7/1/2019	Paul Lindstrom	PNF

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PAM	[redacted]	[redacted]	Alonso Guedes	6/21/2019	IACUC	monitoring description in protocol for animals undergoing surgery is not current practice	amendment submitted updating monitoring description	7/15/2019	Kristin Pilon	PNF
PAM		[redacted]	Steven Graves	6/25/2019	IACUC	person performing surgery not listed as a surgeon in the protocol	amendment submitted to add surgeon to protocol	7/2/2019	Paul Lindstrom	PNF
Second Surgery/Semi-annual		[redacted]	Richard Bianco	6/27/2019	IACUC	needs to update protocol to reflect that the two animals only undergoing Echo procedure every other week are not implanted	amendment submitted to clarify procedures for control animals	6/28/2019	Kristin Pilon and Scott Madill	PNF
PAM		[redacted]	Eric Newman	6/26/19 and 6/28/19	IACUC	person performing surgery not listed as a surgeon in the protocol	surgeon will be added to protocol	7/1/2019	Megan McCoy	PNF
PAM		[redacted]	Xavier Revelo	7/8/2019	IACUC	fecal transplant study conducted but study not outlined in protocol	lab will no longer perform fecal transplant studies; if needed in the future, an amendment will be submitted to add procedure to protocol	7/16/2019	Kristin Pilon	PNF

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc.	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM	[redacted]	[redacted]	Clark Chen	7/11/19 and 7/16/19	IACUC	Isoflurane anesthetic used for perfusions but Urethane/Acepromazine approved in protocol for this procedure	amendment submitted requesting use of isoflurane for perfusions	7/19/2019	Jennifer Borgert	PNF
PAM		[redacted]	Guisheng Song	7/22/2019	IACUC	adult mice receiving AAV via tail injection but protocol indicates that 2 day old mice will be injected via AAV via temporal vein	amendment submitted updating protocol to include adult mice	8/9/2019	Paul Lindstrom	PNF
PAM		[redacted]	Nicola Grissom	7/24/2019	IACUC	dosage of ketamine used for experimental procedures prior to operant behavioral testing is over twice the dosage approved	amendment submitted updated ketamine dosage	7/26/2019	Kristin Pilon	PNF
PAM		[redacted]	Nicola Grissom	7/24/2019	IACUC	needs to add lidocaine for use on ear bars prior to surgery	amendment submitted adding the use of lidocaine	7/26/2019	Kristin Pilon	PNF

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM	[redacted]	[redacted]	Michael Kyba	7/30/2019	IACUC	bilateral surgical procedure done to injure the muscle/cell transplant but protocol only reads that one hind limb muscle will be injured and transplanted	amendment submitted clarifying that the procedure is bilateral	8/2/2019	Megan McCoy	PNF
Second Surgery Inspection	[redacted]	[redacted]	Marija Cvetanovic	7/29/2019	IACUC	needs to reinstate giving SR buprenorphine 3-4 hours prior to surgery as per stipulations; Carprofen was on board at time of surgery (repeat finding)	Going forward, SR-Buprenorphine will be given 3-4 hours prior to surgery	8/15/2019	Jennifer Borgert	PNF
PAM	[redacted]	***	Sara Hamilton-Hart	8/6/2019	IACUC	endpoints of study not followed	amendment submitted extending study endpoints	8/15/2019	Kristin Pilon	PNF
PAM	[redacted]	[redacted]	Stephen Jameson	8/6/2019	IACUC	anesthetic used for intranasal infection not approved for this procedure	amendment submitted adding additional anesthetic	8/9/2019	Ilana Cohen	PNF

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM	[redacted]	[redacted]	Stephen Jameson	8/6/2019	IACUC	euthanasia method for parabiosis study different than what is approved in protocol	amendment submitted adding alternative euthanasia method	8/9/2019	Ilana Cohen	PNF
PAM		[redacted]	Alexander Khoruts	8/15/2019	IACUC	monitoring of hamsters between 36-48 hours after infection not done as per approved protocol	amendment submitted updating and describing hamster monitoring	9/9/2019	Kristin Pilon	PNF
PAM		[redacted]	Phu Tran	8/20/2019	IACUC	euthanasia method used not outlined in protocol	amendment submitted adding euthanasia method to protocol	8/27/2019	Ilana Cohen	PNF
Self Report		***	Felicia Boynton	8/20/2010	IACUC	ophthalmology procedures conducted on training protocol that were not outlined	amendment has been submitted to add them to training protocol	8/20/2019	Self Report	PNF
PAM		[redacted]	Kakambi Nagaraja	8/21/2019	IACUC	blood collection method different than approved in protocol	protocol will be amended to include alternate route of blood collection	9/11/2019	Kristin Pilon	PNF

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Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM	[redacted]	[redacted]	Kakambi Nagaraja	8/21/2019	IACUC	rabbits immunized weekly and with increasing volumes of antigen/adjuvant for a total of 8 weeks	since rabbits were no seroconverting with low antigen concentration, the antigen concentration was increased; this experiment is now complete but if the protocol is renewed, it will be amended with the increased concentrations	9/11/2019	Kristin Pilon	PNF
PAM/Semi-annual		[redacted]	Tay Netoff	8/22/2019	IACUC	fluorogold tracer injection conducted but not approved in protocol	amendment submitted adding procedure to protocol; no fluorogold injections will be performed until amendment is approved	9/4/2019	Kristin Pilon and Peggy Norris	PNF
PAM/Semi-annual		[redacted]	Tay Netoff	8/22/2019	IACUC	needs to update protocol to detail tethering of animals in special caging for one week	amendment submitted updating tethering procedures and length of time	9/4/2019	Kristin Pilon and Peggy Norris	PNF

Fall 2019 Minor Findings Report										
Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM	[redacted]	[redacted]	Sarah Greising	8/27/2019	IACUC	injections into muscle given as treatment do not require a surgery and thus do not require analgesics, needs to update protocols to make this distinction	amendment submitted clarifying that injections into muscles given as treatment is not a surgical procedure and therefore analgesics are not given	9/3/2019	Kristin Pilon	PNF
PAM		[redacted]	Sarah Greising	8/27/2019	IACUC	protocol 1811-36513A should be updated to reflect that time 0 is a non-survival surgery not requiring analgesics	amendment submitted making clarification on time 0 not requiring analgesics	9/3/2019	Kristin Pilon	PNF
PAM		[redacted]	Dale Gregerson	9/5/2019	IACUC	fundus imaging done under Isoflurane instead of ketamine/xylazine as approved in the protocol	amendment submitted adding alternate anesthetic for this procedure	9/12/2019	Ilana Cohen	PNF
PAM		[redacted]	Hongbo Pang	9/9/2019	IACUC	five million cells injected SC but protocol only approved for one million tumor cells to be given	amendment submitted increasing range of number of cells to be injected	9/17/2019	Kristin Pilon	PNF

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM	[redacted]	[redacted]	Hongbo Pang	9/9/2019	IACUC	Avertin used prior to perfusion but ketamine/xylazine listed as anesthetic to be used	amendment submitted adding avertin option	9/17/2019	Kristin Pilon	PNF
PAM		[redacted]	Robert Cormier	9/18/2019	IACUC	person performing surgery not listed as a surgeon	amendment submitted adding surgeon to protocol	9/19/2019	Paul Lindstrom	PNF
Second Surgery/Semi-annual		[redacted]	Mark Thomas	9/17/2019	IACUC	euthanasia method not approved in protocol	amendment submitted updating euthanasia method	9/27/2019	Kristin Pilon and Jen Hubbard	PNF
Second Surgery Inspection		[redacted]	Jean Regal	9/18/2019	IACUC	needs to have an exception for single housing of animals that do not have catheters	amendment submitted updating social housing exception to include animals that do not have catheters	9/27/2019	Jennifer Borgert	PNF
Self Report		***	Vaiva Vezys	9/23/2019	IACUC	animal work done on wrong protocol as wrong animals transferred to [redacted] for experiments	proper transfer paperwork put in and discrepancy resolved	9/24/2019	Self Report	PNF

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
Second Surgery Inspection	[redacted]	[redacted]	Demetri Yannopoulos	4/25/2019	OHS	ROHP requirements not met by all staff listed on protocol	all staff now ROHP compliant	4/29/2019	Kristin Pilon	ROHP
Initial Surgery Inspection		[redacted]	Kevin Wickman	4/30/2019	OHS	ROHP requirements not met by all staff listed on protocol	all staff now ROHP compliant	5/1/2019	Jennifer Borgert	ROHP
PAM		[redacted]	Alex Bianco	5/3/2019	OHS	ROHP requirements not met by all staff listed on protocol	all staff now ROHP compliant	5/24/2019	Kristin Pilon	ROHP
PAM		[redacted]	Paolo Provenzano	6/27/2019	OHS	ROHP requirements not met by all staff listed on protocol	ROHP requirements are being met	7/1/2019	Jennifer Borgert	ROHP
Second Surgery Inspection		[redacted]	Shalom Michaeli	8/6/2019	OHS	ROHP requirements not met by all staff listed on protocol	All staff now ROHP compliant	8/19/2019	Jennifer Borgert	ROHP

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
PAM	[redacted]	[redacted]	George Wilcox	8/20/2019	OHS	ROHP requirements not met by all staff listed on protocol	person removed from study	8/21/2019	Paul Lindstrom	ROHP
PAM		[redacted]	Robert Cormier	9/18/2019	OHS	ROHP requirements not met by all staff listed on protocol	all staff now ROHP compliant	9/19/2019	Paul Lindstrom	ROHP
Second Surgery/Semi-annual		[redacted]	Mark Thomas	9/17/2019	OHS	ROHP requirements not met by all staff listed on protocol	all staff now ROHP compliant	9/27/2019	Kristin Pilon and Jen Hubbard	ROHP
Semi-annual		[redacted]	Thomas Hrabik	9/18/2019	OHS	ROHP requirements not met by all staff listed on protocol	all staff now ROHP compliant	10/11/2019	Kristin Pilon and Felicia Boynton	ROHP
PAM/Semi-annual		[redacted]	Ulrike Munderloh	9/20/2019	OHS	ROHP requirements not met by all staff listed on protocol	Tetanus scheduled for 10/16	9/26/2019	Jennifer Borgert and Keith Baker	ROHP

Fall 2019 Minor Findings Report

Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Deficiency Type- DEHS, OHS, etc	Minor Deficiency * = Repeat Finding	Corrective Action	Completion Date	Inspectors	Category
Second Surgery/Semi-annual	[redacted]	[redacted]	Timothy Ebner	9/26/2019	OHS	ROHP requirements not met by all staff listed on protocol	ROHP requirement has been met	10/14/2019	Paul Lindstrom and Christine Sivula	ROHP
PAM/Semi-annual		[redacted]	Patrick Rothwell	9/30/2019	OHS	ROHP requirements not met by all staff listed on protocol	staff member has an appointment to receive tetanus booster	10/8/2019	Kristin Pilon and Liz Pluhar	ROHP
PAM/Semi-annual		[redacted]	Jerrold Vitek and Matthew Johnson	9/27/2019	OHS	ROHP requirements not met by all staff listed on protocol	ROHP requirements are being met	10/1/2019	Kristin Pilon and Dan Montonye	ROHP

Fall 2019 No Findings Report					
Type of Inspection	Building	Room #	Responsible Party	Date of Inspection	Inspectors
PAM	[redacted]	[redacted]	Ferenc Toth	4/9/2019	Kristin Pilon
PAM		[redacted]	Michael Garwood	4/10/2019	Paul Lindstrom
Semi-annual		[redacted]	Jennifer Erickson	4/10/2019	Melanie Graham and Brian Crooker
Semi-annual		[redacted]	Jennifer Erickson	4/10/2019	Melanie Graham and Brian Crooker
Semi-annual		[redacted]	Jeramy Kulesa	4/10/2019	Melanie Graham and Brian Crooker
PAM		[redacted]	A. David Redish	4/16/2019	Paul Lindstrom
PAM		[redacted]	Jayanth Panyam	4/16/2019	Ilana Cohen
Ag		[redacted]	Lee Johnston	4/17/2019	Paul Lindstrom and Felicia Boynton
Ag		[redacted]	Bradley Heins	4/17/2019	Paul Lindstrom and Felicia Boynton
Ag		[redacted]	David Israels-Swenson	4/17/2019	Paul Lindstrom and Felicia Boynton
PAM		[redacted]	Daniel Saltzman	4/18/2019	Paul Lindstrom

Semi-annual	[redacted]	Jennifer Erickson	4/19/2019	Megan McCoy and Don Martin
Semi-annual	[redacted]	Jennifer Erickson	4/23/2019	Ilana Cohen and Laura Hocum-Stone
PAM	[redacted]	Manish Patel	4/24/2019	Paul Lindstrom
Second Surgery Inspection	[redacted]	Robert Tranquillo	4/25/2019	Kristin Pilon
Second Surgery Inspection	[redacted]	Ganesh Raveendran	4/25/2019	Kristin Pilon
PAM	[redacted]	Andrew Grande	4/25/2019	Kristin Pilon
PAM	[redacted]	Roy Cho	4/25/2019	Kristin Pilon
Second Surgery Inspection	[redacted]	Derrick Green	4/25/2019	Kristin Pilon
Semi-annual	[redacted]	Jennifer Erickson	4/25/2019	Ilana Cohen and Mimie Pollard
Semi-annual	***	Tristan McNamara	4/25/2019	Ilana Cohen and Mimie Pollard
PAM	[redacted]	Sunil David	4/26/2019	Jennifer Borgert
Semi-annual	[redacted]	Jennifer Rees	4/25/2019	Jennifer Borgert and Christine Sivula
Second Surgery Inspection	***	Sara Hashway	4/19/2019	Jennifer Borgert

Semi-annual	[redacted]	Rob Denton	4/29/2019	Kristin Pilon and Christine Sivula
Semi-annual		Kerry Michael	4/29/2019	Kristin Pilon and Christine Sivula
Semi-annual		Heather Waye	4/29/2019	Kristin Pilon and Christine Sivula
Semi-annual		Heather Waye	4/29/2019	Kristin Pilon and Christine Sivula
Semi-annual/Second Surgery		Philip Portoghese	4/30/2019	Jennifer Borgert and Nate Koewler
PAM		Daniel Mueller	4/22/19 and 4/30/19	Jennifer Borgert
Initial Surgery Inspection		Kevin Wickman	4/30/2019	Jennifer Borgert
PAM		Prakash Kara	4/30/2019	Kristin Pilon
PAM		Eric Jensen	5/2/2019	Paul Lindstrom
PAM/Semi-annual		Sivaraj Sivaramakrishnan	5/2/2019	Jennifer Borgert and George Wilcox
Second Surgery Inspection		Greg Beilman	5/7/2019	Jennifer Borgert
PAM		Kirsten Nielsen	5/7/2019	Jennifer Borgert
PAM/Semi-annual		Gordon Smith	5/8/2019	Kristin Pilon and Peggy Norris

Semi-annual	[redacted]	Mark Sanders	5/7/2019	Paul Lindstrom and Liz Pluhar
Semi-annual	[redacted]	Mark Sanders	5/7/2019	Paul Lindstrom
Semi-annual	[redacted]	Alena Talkachova	5/8/2019	Paul Lindstrom and Don Martin
PAM	[redacted]	Tanya Freedman	5/8/2019	Ilana Cohen
Ag	[redacted]	Sally Noll	5/10/2019	Paul Lindstrom
PAM	***	Georgiy Aslanidi	5/15/2019	Paul Lindstrom
Second Surgery Inspection	***	Rebecca Morris	5/15/2019	Kristin Pilon
PAM	[redacted]	Beshay Zordoky	5/16/2019	Ilana Cohen
Second Surgery/Semi-annual Inspection	[redacted]	Carrie Haskell-Luevano	5/17/2019	Jennifer Borgert and Swayam Prabha
Semi-annual	[redacted]	Maxim Cheeran	5/20/2019	Paul Lindstrom and Sara Hashway
Semi-annual	[redacted]	Jennifer Erickson	5/22/2019	Ilana Cohen and George Wilcox
PAM	[redacted]	Mary Garry	5/21/2019	Paul Lindstrom
Second Surgery Inspection	[redacted]	Savita Rao	5/22/2019	Paul Lindstrom

Semi-annual	[redacted]	[redacted]	Jennifer Erickson	5/17/2019	Megan McCoy and Kakambi Nagaraja
Semi-annual		[redacted]	Jennifer Erickson	5/17/2019	Megan McCoy and Kakambi Nagaraja
Semi-annual		[redacted]	Ned Patterson	5/17/2019	Megan McCoy and Kakambi Nagaraja
Second Surgery Inspection		[redacted]	Sergio Gradilone	5/15/2019	Megan McCoy
PAM		[redacted]	Shujun Liu	5/15/2019	Megan McCoy
PAM		[redacted]	Andrew Nelson	5/28/2019	Kristin Pilon
PAM		[redacted]	Katie Satrom	5/28/2019	Megan McCoy
PAM		[redacted]	Ingunn Stromnes	5/24/2019	Jennifer Borgert
PAM		[redacted]	Geoffrey Hart	5/28/2019	Jennifer Borgert
PAM		[redacted]	Daniel Garry	5/31/2019	Paul Lindstrom
PAM		[redacted]	Gulin Oz	5/30/2019	Jennifer Borgert
Ag		[redacted]	Hugh Chester-Jones	5/31/2019	Jennifer Borgert
Ag		[redacted]	Samuel Baidoo	5/31/2019	Jennifer Borgert

Second Surgery Inspection	[redacted]	[redacted]	Mohammad Saleem Bhat	6/6/2019	Megan McCoy
Second Surgery Inspection		[redacted]	Timothy O'Connell	6/5/2019	Ilana Cohen
Second Surgery Inspection		[redacted]	Thomas Griffith	6/4/2019	Ilana Cohen
PAM		[redacted]	Dawn Lowe	6/4/2019	Paul Lindstrom
Semi-annual		***	Scott Madill	6/6/2019	Ben Clark and Sally Noll
PAM/Semi-annual		[redacted]	Christine Sivula	6/10/2019	Kristin Pilon and Peggy Norris
PAM		***	Paul Everson	6/13/2019	Jennifer Borgert
PAM		[redacted]	Daniel Vallera	6/13/2019	Paul Lindstrom
PAM		[redacted]	David Largaespada	6/11/2019	Paul Lindstrom
PAM		[redacted]	Yun You	6/17/2019	Jennifer Borgert
PAM		[redacted]	Anthony Baughn	6/20/2019	Jennifer Borgert
Semi-annual		[redacted]	Jennifer Erickson	6/21/2019	Paul Lindstrom and Brian Crooker
Semi-annual		[redacted]	Jennifer Erickson	6/24/2019	Kristin Pilon and George Aslanidi

PAM/Semi-annual	[redacted]	Melanie Graham	6/21/2019	Paul Lindstrom and Brian Crooker
PAM/Semi-annual		Melanie Graham	6/21/2019	Paul Lindstrom and Melanie Graham
PAM		Lisa Peterson	6/19/2019	Megan McCoy
PAM		Kalpna Gupta	6/25/2019	Jennifer Borgert
Ag		Sally Noll	6/25/2019	Paul Lindstrom and Scott Madill
PAM/Semi-annual		Hubert Lim	6/25/2019	Paul Lindstrom and Nathan Koewler
PAM		Sergey Khasabov	6/26/2019	Paul Lindstrom
Second Surgery Inspection		Cindy Martin	6/27/2019	Kristin Pilon
PAM		Rosemary Kelly	6/27/2019	Kristin Pilon
PAM		Ratan Banik	6/26/2019	Paul Lindstrom
PAM		Rafael Andrade	6/27/2019	Kristin Pilon
Second Surgery Inspection		Julia Lemos	6/27/2019	Kristin Pilon
PAM		Peter Santi	6/26/2019	Megan McCoy

Ag	[redacted]	***	Krishona Martinson	6/21/2019	Jennifer Borgert and Jen Hubbard
Ag		***	Brian Crooker	6/21/2019	Jennifer Borgert and Jen Hubbard
Semi-annual		[redacted]	Wei Chen	7/8/2019	Kristin Pilon and Jen Hubbard
Semi-annual		[redacted]	Christina Clarkson	7/8/2019	Kristin Pilon and Brian Crooker
Second Surgery Inspection		[redacted]	Joceyln Richard	7/11/2019	Kristin Pilon
PAM		[redacted]	Alfonso Araque	7/11/2019	Ilana Cohen
PAM		[redacted]	Stanley Thayer	7/17/2019	Paul Lindstrom
Semi-annual		***	Jennifer Erickson	7/18/2019	Ilana Cohen and Robert Schumacher
Semi-annual		***	Jennifer Erickson	7/18/2019	Ilana Cohen and Robert Schumacher
Semi-annual		***	Jennifer Erickson	7/18/2019	Ilana Cohen and Robert Schumacher
PAM		[redacted]	Catherine Kotz	7/17/2019	Ilana Cohen
Second Surgery Inspection		[redacted]	Sven-Ulrik Gorr	7/12/2019	Ilana Cohen
Semi-annual		[redacted]	Jennifer Erickson	7/15/2019	Megan McCoy and Laura Hocum Stone

Semi-annual	[redacted]	Jennifer Erickson	7/15/2019	Megan McCoy and Laura Hocum Stone
Semi-annual	[redacted]	Dan Busian	7/19/2019	Paul Lindstrom and Sam Baidoo
PAM	[redacted]	Carston Wagner	7/22/2019	Megan McCoy
Second Surgery/Semi-annual	[redacted]	Paul Iaizzo	7/22/2019	Paul Lindstrom and Scott Madill
Initial Surgery Inspection	[redacted]	Yoji Shimizu	7/24/2019	Ilana Cohen
Semi-annual	***	Richard Bianco	7/24/2019	Paul Lindstrom and Brian Crooker
PAM	***	Scott Madill	7/19/2019	Jennifer Borgert
PAM	***	Alon Herschhorn	7/25/2019	Kristin Pilon
Second Surgery Inspection	[redacted]	Alik Widge	7/25/2019	Kristin Pilon
Initial Surgery/Semi-annual	[redacted]	John Ward	7/26/2019	Paul Lindstrom and Mimie Pollard
PAM	[redacted]	Ivan Tkac	7/29/2019	Paul Lindstrom
PAM	[redacted]	Subree Subramanian	7/23/2019	Megan McCoy
PAM	[redacted]	Cheuk Leung	7/29/2019	Megan McCoy

PAM	[redacted]	[redacted]	Julia Davydova	7/22/2019	Jennifer Borgert
PAM		[redacted]	Julia Davydova	7/26/2019	Jennifer Borgert
Semi-annual		[redacted]	Jennifer Erickson	7/31/2019	Jennifer Borgert and Marilyn Bennett
Semi-annual		[redacted]	Jennifer Erickson	7/31/2019	Jennifer Borgert and Marilyn Bennett
PAM		[redacted]	Sunny Chan	8/1/2019	Ilana Cohen
Semi-annual		[redacted]	Alessandro Bartolomucci	8/7/2019	Kristin Pilon
Semi-annual		[redacted]	Michael Benneyworth	8/7/2019	Kristin Pilon
Semi-annual		[redacted]	Julia Ponder	8/6/2019	Ilana Cohen and Jim Perry
PAM		[redacted]	Dorraya El-Ashry	8/2/2019	Megan McCoy
PAM		[redacted]	Kristin Hogquist	8/6/2019	Ilana Cohen
PAM		[redacted]	Bryce Binstadt	8/8/2019	Ilana Cohen
PAM		[redacted]	Christopher Staley	8/8/2019	Jennifer Borgert
Second Surgery Inspection		[redacted]	Benjamin Saunders	8/9/2019	Kristin Pilon

Second Surgery Inspection	[redacted]	***	Sarah Heilbronner	8/12/2019	Kristin Pilon
Semi-annual		[redacted]	Emily Taras	8/12/2019	Megan McCoy
PAM		[redacted]	Paulo Kofuji	8/14/2019	Ilana Cohen
Semi-annual		[redacted]	Anna Lee	8/13/2019	Paul Lindstrom and Dezhi Liao
Second Surgery Inspection		[redacted]	Suhasa Kodandaramaiah	8/15/2019	Paul Lindstrom
Semi-annual		[redacted]	Stephen Katz	8/15/2019	Paul Lindstrom and Sam Baidoo
Semi-annual		[redacted]	Mark Masino	8/15/2019	Jennifer Borgert and Christine Sivula
Semi-annual		[redacted]	Mark Masino	8/15/2019	Jennifer Borgert and Christine Sivula
PAM/Semi-annual		[redacted]	Esther Krook-Magnuson	8/14/19 and 8/20/19	Kristin Pilon and Christine Sivula
Semi-annual		[redacted]	David Stephens	8/16/2019	Jennifer Borgert and Marilyn Bennett
PAM		[redacted]	Alexandra Sobeck	8/20/2019	Megan McCoy
Initial Surgery Inspection		[redacted]	Carolyn Fairbanks	8/20/2019	Paul Lindstrom
PAM		[redacted]	Peter Crawford	8/21/2019	Ilana Cohen

Second Surgery Inspection	[redacted]	Karen Ashe	8/19/2019	Jennifer Borgert
PAM	[redacted]	DeWayne Townsend	8/22/2019	Paul Lindstrom
PAM	[redacted]	Jerid Robinson	8/28/2019	Kristin Pilon
Second Surgery Inspection	[redacted]	Rita Perlingeiro	8/30/2019	Megan McCoy
Semi-annual	[redacted]	Sandy Mand	8/29/2019	Jennifer Borgert and Felicia Boynton
Semi-annual	[redacted]	Sandy Mand	8/29/2019	Jennifer Borgert and Felicia Boynton
Second Surgery Inspection	[redacted]	Michael Olin	8/30/2019	Jennifer Borgert
PAM	[redacted]	John Belcher	8/26/2019	Jennifer Borgert
PAM	[redacted]	John Belcher	8/26/2019	Jennifer Borgert
PAM/Semi-annual	[redacted]	Mark Hove	9/6/2019	Paul Lindstrom and Jim Perry
PAM	[redacted]	Anna Lee	9/4/2019	Paul Lindstrom
PAM	[redacted]	York Marahrens	9/4/2019	Megan McCoy
PAM/Semi-annual	[redacted]	Frank Ondrey	9/10/2019	Jennifer Borgert and Robert Schumacher

PAM	[redacted]	[redacted]	Alexander Primus	9/6/2019	Jennifer Borgert
PAM		[redacted]	Massimo Costalonga	9/9/2019	Megan McCoy
PAM		[redacted]	Courtney Aldrich	9/6/2019	Megan McCoy
Ag		[redacted]	Nicky Overgaard	9/11/2019	Kristin Pilon and Felicia Boynton
Ag		[redacted]	Nicky Overgaard	9/11/2019	Kristin Pilon and Felicia Boynton
Ag		[redacted]	Terrill Giannonatti-Bradford	9/11/2019	Kristin Pilon and Felicia Boynton
Semi-annual		[redacted]	Rick Abrahamson	9/11/2019	Kristin Pilon and Felicia Boynton
Semi-annual		[redacted]	Jennifer Erickson	9/17/2019	Megan McCoy and Peggy Norris
Semi-annual		[redacted]	Mark Thomas and Julia Lemos	9/17/2019	Kristin Pilon and Jen Hubbard
PAM/Semi-annual		[redacted]	Ian Aldrich	9/18/2019	Kristin Pilon and Felicia Boynton
Semi-annual		[redacted]	Allen Mensinger	9/18/2019	Kristin Pilon and Felicia Boynton
PAM/Semi-annual		***	Erin Olson	9/18/2019	Kristin Pilon and Felicia Boynton
Semi-annual		[redacted]	Jennifer Liang	9/18/2019	Kristin Pilon and Felicia Boynton

PAM/Semi-annual	[redacted]	Frank Maragi	9/18/2019	Kristin Pilon and Felicia Boynton
PAM	[redacted]	Dezhi Liao	9/19/2019	Paul Lindstrom
Second Surgery Inspection	[redacted]	Amanda Klein	9/18/2019	Paul Lindstrom
PAM	[redacted]	Ruifeng Cao	9/18/2019	Jennifer Borgert
PAM	[redacted]	Yi-Mei Yang	9/18/2019	Jennifer Borgert
Semi-annual	[redacted]	Erin Malone	9/23/2019	Kristin Pilon and Peggy Norris
Semi-annual	[redacted]	Sandra Allweiler and Kim Colvard	9/23/2019	Kristin Pilon and Peggy Norris
Second Surgery Inspection	[redacted]	Tate Gisslen	9/20/2019	Ilana Cohen
Semi-annual	[redacted]	Mark Schleiss	9/24/2019	Paul Lindstrom and Geoffrey Ghose
PAM/Semi-annual	[redacted]	Timothy Kurtti	9/20/2019	Jennifer Borgert and Keith Baker
PAM	[redacted]	Yasushi Nakagawa	9/20/2019	Jennifer Borgert
PAM/Semi-annual	[redacted]	Mark Bee	9/19/2019	Jennifer Borgert and Nathan Koewler
PAM/Semi-annual	[redacted]	Mark Bee	9/19/2019	Jennifer Borgert and Nathan Koewler

Semi-annual	[redacted]	Jennifer Erickson	9/25/2019	Paul Lindstrom and Mimie Pollard
Semi-annual	[redacted]	Brenda Mielke	9/25/2019	Kristin Pilon and Peggy Norris
Semi-annual	[redacted]	Sheryl Ferguson	9/25/2019	Kristin Pilon and Peggy Norris
Semi-annual	[redacted]	Flannery Miley	9/25/2019	Kristin Pilon and Peggy Norris
Semi-annual	[redacted]	Denise Obitz-Cooney	9/25/2019	Kristin Pilon and Peggy Norris
PAM	[redacted]	Yuying Liang	9/26/2019	Paul Lindstrom
Semi-annual	[redacted]	Jennifer Erickson	9/27/2019	Megan McCoy and Dezhi Liao
Semi-annual	[redacted]	Marc Jenkins	9/27/2019	Megan McCoy and Dezhi Liao
Semi-annual	[redacted]	Ann Fallon	9/27/2019	Jennifer Borgert and K. V. Nagaraja
Semi-annual	[redacted]	Deborah Ferrington	9/24/2019	Jennifer Borgert and Robert Schumacher
Semi-annual	[redacted]	Maxim Cheeran	9/30/2019	Paul Lindstrom and Felicia Boynton
Semi-annual	[redacted]	Michael Conzemius	9/30/2019	Paul Lindstrom and Felicia Boynton

NOTES WRITTEN TO FILE

Investigator Name	Date of Inspection/submission	Protocol number (s)	Notes written to file
Jakub Tolar	5/13/2019	1808-36286A	PI request modification of a procedure regarding skin grafts to a less invasive method that will not require a chamber implant but uses a gelatin printed graft implant instead. Previously the chamber would be removed on day 5 requiring an additional anesthetic event. The gelatin printed graft negates this additional event. The area veterinary was in consult for this procedural improvement.
Gregory Beilman	5/14/2019	1805-35872A	PI submits to IACUC additional details of when supplemental fluid would be provided in pigs. The addition includes: after 4 hours of full resuscitation, if animal has a SBP>90 mmHG continue to observe; SBP < 90mmHG a lactate <2, and urine output >1cc/kg/hr, continue to observe urine output <1cc/kg/hour, give fluid bolus; Lactate >2, give fluid bolus
Daniel Gallaher	5/30/2019	1801-35506A	PI requests an additional six animals added to the protocol for use for training purposes.
Jizhen Lin	6/5/2019	1610-34251A	Noted on inspection that anti-PD antibodies are given by IP route but protocol indicates that they will be given IV
Brian Betts	6/5/2019	1807-36180A	PI requests clarification on timing of analgesics given (Carprofen every 24 hours as needed for breakthrough pain up to 72 hours post skin surgery)
Esther Krook-Magnuson	6/11/2019	1801-35497A	PI requests adding the distribution of sweet tasting food crumbs (e.g. chocolate sprinkles) to the open field behavioral test to encourage exploration
Jayanth Panyam	6/17/2019	1605-33821A	PI requests the use of a modified diet (purified AIN93G) for some mice that will be used in the imaging studies. The diet is nutritionally equivalent to normal feed but is better for immunofluorescence as it is supposed to decrease the background fluorescence when imaging.

NOTES WRITTEN TO FILE

Valerie Brady	7/11/2019	1702-34612A	PI requests to increase the number of animals that are fin clipped than what was originally approved. This year they will be marking fishes in the [redacted] via fin clipping. Up to approximately 2000 fish will be marked (much likely less). The experimental design, procedures and attachment sections have all been updated to reflect the increase in the number of fishes receiving fin clips. Fin clipping is currently approved as a procedure in the protocol.
Yibin Deng	7/16/2019	1608-34064A	PI will use Nair to remove fur from mice prior to surgery. Currently, protocol indicates removal of top layer of fur using shearing scissors.
Courtney Johnson	7/19/2019	1806-36014A	PI requests to include additional inclusion criteria for the dog study: to include dogs euthanized at the local animal control facility for reasons unrelated to the study and dogs euthanized at [redacted] for reasons unrelated to the study
David Bereiter	7/30/2019	1802-3557A and 1802-35558A	Noted on inspection that only urethane is used for terminal procedures but protocol was updated last inspection to use both urethane and Isoflurane. Verbiage stating that either or both can be used during the approved terminal procedures
Natalia Tretyakova	9/25/2019	1706-34933A	PI requests 18 mice to be added to the protocol
Ulrike Munderloh	9/27/2019	1804-35774A	Noted on inspection that rickettsia inoculation and subsequent challenge injections done via IP injection but protocol is approved for IV tail vein injection.

Date of Recommendation	Investigator	Species	Protocol Number	Recommendation
4/8/2019	Dale Gregerson	mouse	1706-34882A	The lab is experiencing mortality of young (age 3-6 week) and parabiosed mice following anesthesia with 100mg/kg ketamine, 10 mg/kg xylazine for fundus exams. This recommendation is to use an 8 mg/kg dose of ketamine for these more vulnerable mice. Lab staff will also provide 0.5-1mL warm saline SC at the time of anesthetic induction and cover the microscope stage and the mouse to retain heat. In addition, to prevent stress of parabiosesd mice associated with restraint for IP injections, paired mice will be anesthetized in an isoflurane induction chamber, then removed and injected with ketamine/xylazine IP
4/24/2019	Yibin Deng	mouse	1608-34064A	This veterinary recommendation is to modify both anesthesia and analgesia in the protocol to limit steps and stress to the mouse versus what is approved in the protocol. This recommendation is specifically for the allograft prostate cancer mouse models surgery but also pertains to the surgical castration surgery. For analgesia, use of SR buprenorphine at 2mg/kg, SC 2-4 hours prior to the surgical procedures. This is in place of starting with standard buprenorphine and then switching to SR buprenorphine. This will limit the number of injections the mouse receives. For anesthesia: use isoflurane at a range of 1-5% for both induction and maintenance (induction will be at the higher percentages and maintenance will be at the lower percentages. This is a change from starting with ketamine/xylazine for induction then switching to Isoflurane.

5/1/2019	Ferenc Toth	pig	1704-34762A, 1703-34645A; 1901-36656A	The drugs and doses listed below may be used for premedication, induction or maintenance of anesthesia (in addition to what is already listed on the protocol). The various options give lab staff tools to maintain physiologic homeostasis during surgical or imaging procedures, and minimize distress during premedication and induction: Telazol/xylazine; telazol/ketamine/xylazine; ketamine/acepromazine/atropine; Fentanyl; Also a urinary catheter may be placed in female pigs to aid in voiding during anesthesia. Male pigs may be manually expressed. If this is unsuccessful, cystocentesis may be performed to empty the bladder
5/7/2019	Dale Gregerson	mouse	1706-34882A	To improve post operative nutrition and reduce morbidity in parabiosed mice, lab members will administer 0.5-1Ml SC fluids (LRB, LRB with 5% dextrose or 0.9% NaCl) to each mouse daily for 7 days after surgery. To encourage food consumption, moist food and diet get will be supplemented with autoclaved sunflower seeds and banana chips. These supplements will not replace the standard, fully-balance rodent diet but will be provided in small amounts to ensure that mice are in taking sufficient calories for appropriate recovery.
5/24/2019	Wei Chen	rat and cat	1903-36898, 1606-33914	Because the NeoPredEf powder is on backorder through the end of 2019, a veterinary recommendation was made to use topical supportive agents post operatively as needed for rats and cats undergoing craniotomies. Topical products include triple antibiotic ointment, Collasate, Rediheal and Wonderdust. The products can be used 1-2X daily either individually or in combination to aid in wound healing

6/4/2019	Brian Betts	mouse	1807-36180A	Recommended changes within the Skin Graft Surgery Procedure: make clear SR buprenorphine is the drug being used (versus standard buprenorphine) at a dose of 2mg/kg SC once pre-operatively 2-4 hours prior to surgery; Carprofen dosing should be changed to once a day dosing (for unrelieved pain not covered by SR buprenorphine on an as needed basis; Additionally please add range of carprofen from 5-10 mg/kg. Since it will be used synergistically with buprenophine , the lowest possible dose for effective pain control should be used; Starting with a lower dose would be the best in this case and then more can be added if pain is still noted
6/26/2019	Esther Krook-Magnuson	mouse	1801-35497A	The recommendation is to change from using specifically Neo-Predef to any topical antibiotic ointment/powder +/- steroid +/- topical anesthetic; Topical antibiotic ointments/powders are commonly used post surgery and may contain a variety of different combinations of antibiotics as well as being combined with a variety of different topical anti-inflammatories/anesthetics. Currently, NeoPredef is on backorder and unavailable. Any of the common alternative topical products would be an adequate replacement. Examples include but are not limited to TriTop, Neopolydex, Vetropolycin HC, Derma vet. Having the ability to use alternative treatments is critical to maintaining animal welfare when specific products are unavailable.

7/15/2019	Paul Iaizzo	sheep	1707-35001A	Premedication and induction relieve animal anxiety, reduce anesthetic total dose needed to maintain a surgical plan of anesthesia and allow for catheterization and intubation of animals. Currently, there are two sheep procedures approved on this protocol (Prototype Transcatheter Device Testing and Medial Sternotomy and general surgical procedures: Heart Explantation); Each of these procedures lists different premedication and induction agents. The recommendation is to allow the use of both premedication/induction regimens for either procedure as both could be appropriate based on the animals individual needs and different response to different medications. The PI or his designee will amend the protocol to reflect these changes by 10/15/19. Premedication: Ketamine or Ketmaine/Diazepam; Atropine may be given to help with oral secretions if deemed necessary for intubation; Induction: Propofol to effect (may not be needed if using Ketamine/diazepam combination)
8/19/2019	Alessandro Bartolomucci	mouse	1706-34930A	To reduce overall stress of animals associated with daily oral gavage, lab members may administer Tamoxifen in specially formulated and commercially available Tekland diet. The lab will be responsible for administering the diet, checking food levels daily to ensure mice have enough to eat and documenting when they have changed/filled the food

8/15/2019	Richard Bianco	sheep	1905-37042A	Based on previous history, it seems that the size of the device may result in some functional compromise of the heart during recovery. The drug digoxin can be used to increase cardiac contractility and potentially alleviate some of these effects. The use of the drug may be able to keep the animal healthy with very little risk of negative side effects. This will benefit both the animal and the study, and require less total animals if survival and well being can be improved. Following surgery if
8/19/2019	Marija Cventanovic	guinea pigs	1703-34631A	This vet recommendation is to allow housing of guinea pigs in building 75 of the Itasca Biological Station as an alternative housing are in the event that the environmental conditions fall outside the acceptable humidity range and the recommended temperature range in building 45 as dictated by the Guide. This recommendation is in effect for 8/19/19 through the end of the day on 8/23/19. Consideration should be given to the ventilation, illumination, noise level and other parameters that affect animal and handler health while housed in building 75
8/22/2019	Harry Orr	mouse	1708-35065A	To help mitigate weight loss secondary to daily IP injections of CCK receptor agonists lab members will provide animals with moist feed and sucrose water. Mice will continue to receive a standard, fully balanced rodent diet and may receive 0.5-1.0 mL SC fluids (LRS, LRS with 5% dextrose or 0.9% NaCl) if there is clinical evidence of dehydration. Lab members will euthanize mice if they lose 25% weight or if DVM determines it is appropriate
9/4/2019	Harry Orr	mouse	1708-35065A	To help mitigate weight loss secondary to daily IP injections of CCK receptor agonists, lab members will provide diet supplements including seeds, nuts, banana chips, diet get, etc. All supplements will be provided to mice in consultation with DVM. These supplements will NOT replace the standard, fully balanced rodent diet, but will be provided in small amounts to ensure mice are in taking sufficient nutrients.

9/12/2019	Robert Tranquillo	sheep	1808-36236A	Appropriate use of antibiotics is important for animal health and the prevention of unnecessary antibiotic resistance. The procedure "1-2 week, 4 week and 8 week angiogram to evaluate valve function" details in the post operative instructions to RAR to give ceftiofur/ceftriaxone for seven days after each of these angiograms. Assuming there is no gross contamination during the procedure, this use of antibiotics is likely unnecessary as the risk for post surgical infection is low. The recommendation is to change the instructions for post operative care from "Ceftiofur 3 mg/kg IM or Ceftrioxone 1 gIM every 24 hours for 7 days to "if there is a concern for an infection following procedure, a RAR veterinarian will be consulted for antibiotic recommendations"
9/13/2019	Mark Bee	frogs	1701-24456A	Tree frogs may be housed in either the modified flow through aquaria currently described in the IMHA section or in static aquaria. Animals may be housed with out without sphagnum moss. Newly captured animals have been temporarily housed in static aquaria without moss per veterinary instruction for approximately 8 weeks. Animals housed in static aquaria have exhibited a notably lower rate of attrition than animals housed in flow through aquaria in years past. The reason is unclear but the outcome suggests the animals benefit from this housing scheme. Animals will be provided fresh water daily in a cup/bowl on the floor of the enclosure in lieu of flow through water. Daily observations, cleaning schedules and methods, etc.. will remain unchanged. Long term static housing is a new endeavor for this group. Their PI and vet together may choose to make minor modifications based on experience and circumstances when deemed beneficial to animal health and well being. Minor changes will be included in the protocol renewal along with the description of static aquaria. Major changes will be submitted as amendments for IACUC review and approval

9/13/2019	[redacted]	NHP	1804-35859A	Side effects of harmaline administration used in the Tremor Induction procedure may include vomiting and vertigo. To keep the animal hydrated and comfortable, they may be administered 5-10 mL/kg of SC fluids (LRS or similar) and may be given one of the following anti-nausea medications: Maropitant 1-2 mg/kg SC, IV, PO or ondansetron 0.15 mg/kg SC
9/23/2019	Vaiva Vezys	mouse	1611-34309A	A reversal agent may be administered to animals undergoing anesthesia for LINAC irradiation. Acceptable reversible agents are atipamizole (Antisedan, 1-2 mg/kg SC or IP) or yohibine (Yobine, 0.5-1 mg/kg IP). Reversal agents hasten recovery of consciousness and return to normal activity. When available animals may be anesthetized with inhaled Isoflurane instead of ketamine/xylazine. Isoflurane has a rapid onset and animals recover quickly once the gas is withdrawn. Animals do not need to be injected. The combined benefit is shorter duration of anesthesia and a marked decrease in handling time and number of injections.
9/30/2019	Patrick Rothwell	mouse	1810-36447	This veterinary recommendation is for using brief Isoflurane exposure to remove wound clips post operatively in mice. This helps the animal remain still during clip removal and avoids any additional stress to the surgical site related to tissue pulling. Clips should be removed 7-14 days after surgery

Protocol ID	Principal	Species	Guideline	Exception Request with
1909-37384A	Yang, Yi-Mei	Mice	EUTHANASIA	Mice are sacrificed by decapitation
1909-37384A	Yang, Yi-Mei (Amy)	Mice	SOCIAL HOUSING	see protocol for details
1908-37346A	Robinson, James	Mice	TUMOR ENDPOINT CRITERIA	Mice will develop glioma (20-70% of all cohorts) and the accompanying CNS symptoms - part paralysis (30%), seizures (1%), head tilting (20%), running/walking in circles (5%), cerebral edema (20%). Pronounced CNS symptoms will cause mice to be euthanized; however, we will not euthanized mice with moderate paralysis, head tilting or cerebral edema as long as they can access food and water and do not otherwise seam in distress. Mice in this state will be monitored for dresses progression. Although, the gliomas are not expected to cause the mice any direct pain mice with pronounced cranial swelling, extra cranial tumor growth, debilitating paralysis or edema maybe in pain and will be euthanized. □ The paralysis of a single back leg we consider nondebilitating- two legs or a single front leg debilitating. □
1908-37344A	Nielsen, Kirsten	Mice, Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Pentobarbitol will be purchased from Sigma, prepared in small filter-sterilized batches, and stored in injection vials. Because commercial pentobarbitol requires purchase in large quantities (10ml) we typically see variability in the potency of the drug over the lifetime of the vial that makes correct anesthetic dosing of the mice challenging. The ability to make smaller batches of drug, that can be used more rapidly, will allow us to more accurately dose our mice and will result in fewer adverse

1908-37310A	Li, Ling	Mice	MULTIPLE SURGERY	For the parabiotic pairing/separation procedure, two surgeries will need to be performed on the mice. First is parabiotic surgery to join the two mice. After 1-6 months, the parabiosed mice will need to undergo second surgery to be separated for neurobehavioral assessments as described in the neurobehavioral testing procedure. Thus, the parabiotic pairing/separation surgeries are essential components of the same project. The separation surgery will not cause any more pain and distress than the first parabiotic surgery. Functionally, it will restore the functionality of the individual mice.□ □ During the parabiosed period, some of the mice will be subjected to intracerebral injection of amyloid-beta (to induce Alzheimer's-type pathology including neuroinflammation). These procedures are necessary to study the mechanisms of recruitment of immune cells in the brain. The parabiosed mice are the best
1907-37285A	Mand, Sandy	Fish (Other)	SANITATION FREQUENCY	We use either under-gravel filters where the sediment waste on the gravel is siphoned out monthly or above-tank charcoal filter systems (especially for the marine tanks) where the charcoal cartridges are changed based on manufacturer's recommendations. We have protein skimmers for the marine tanks. We also have an Z-Hab system in Biosci 115 which includes a bio filter, filter,
1907-37285A	Mand, Sandy	Fish (Other)	SOCIAL HOUSING	
1907-37283A	Gordon, Peter	Mice	MULTIPLE SURGERY	In order to assess how CNS leukemia evolves over time it may be necessary to sample CSF from the same mouse. However, similar to repeat blood draws, this is a relatively minor surgical procedure. CSF will not be obtained any more than once per week for a up to a

1907-37280A	Madill, Scott	Horse, Cow (Biomedical)	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	we are perfoming laocal anesthetic blocks for the purpose of diagnosis. We will record doses used and sites of administration bu tthe animal remains conscious and unsedated throughout - we will not be recording vital signs (Equine Lameness Exam - with local anesthetic blocks) sedation only; animals remain conscious and upright (Use of Sedation for Equine Procedures) sedation only, animals remain conscious throughout (Use of Sedation for Bovine Procedures) local anesthetic bleb only for placement of jugular catheter (Blood
1907-37275A	O'Connell, Timothy	Mice	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	Our lab has found in the preliminary studies from the expiring protocol that the frequent handling of the mice (weekly weighing and cage changes, monthly echocardiography, echo-MRI and blood pressure monitoring) has hindered the mice from gaining the weight we would expect on this HFD. In consultation with Dr. Cathy Kotz, an expert in obese mouse models, she suggested that we only weigh the mice bi-weekly. This bi-weekly weighing, along with our decrease in data collection as spelled out in this renewal (baseline,
1907-37262A	Schleiss, Mark	Guinea Pig	SOCIAL HOUSING	see protocol for details

1907-37261A	Dong, Zigang	Mice	MULTIPLE SURGERY	We will attempt to increase vascularity by first inducing a stromal reaction by implanting either a subcutaneous glass disc or Gelfoam dressing 2 weeks prior to the xenograft. Patel, Girish K et al. "A Humanized Stromal Bed Is Required for Engraftment of Isolated Human Primary Squamous Cell Carcinoma Cells in Immunocompromised Mice." The Journal of investigative dermatology 132.2 (2012): 284–290. PMC. Web. 30 May 2017. The implant will sit in the subcutaneous space and the incision will be small, therefore we
1907-37257A	Eckfeldt, Craig	Mice	EUTHANASIA METHOD	only individuals with proper training and a high degree of technical proficiency will perform cervical

1907-37248A	Lowe, Dawn	Mice, Mice	MULTIPLE SURGERY	Simultaneous with ovariectomy, a subset of mice will have nerve cuffs implanted. The ovariectomy procedure takes less than 5 minutes beyond the never cuff and it is less stressful for the mouse than having separate surgical interventions. □ □ One goal of the project is to determine the effect of estrogen on muscle regeneration. A second surgery we are requesting is freeze injury or cardiotoxin injury to the tibialis anterior muscle, which are minimally invasive surgeries. That is, each involves making a skin incision and then placing a freezing probe on the muscle or injecting the muscle with cardiotoxin to induce injury and subsequent muscle regeneration. Mice will be 2-8 weeks post-ovariectomy before either type injury is induced. A subset of cardiotoxin injured mice will be transplanted as well.□ (Ovariectomy) The goal of one study is to determine the effect of estrogen on muscle regeneration. Thus, a second surgery following ovariectomy will be freeze injury to the muscle, which is minimally

1907-37248A	Lowe, Dawn	Mice, Mice	72 HOUR POST-OP ANALGESIA POLICY	Antibiotics and anti-inflammatory reagents are acceptable if necessary for the first surgery nerve cuff/ovariectomy, but are not acceptable after freeze injury or cardiotoxin injury because we are studying the inflammation. (Nerve cuff implantation) We will not give injections of Buprenorphine after the BaCl injury because the surgery is minimal (no body cavity is opened) and we have not noticed signs of post-surgical distress. Further, the BaCl injury is toone specific muscle in a group of muscles that cause dorsiflexion. We will continually work with the vet staff in order to be sure that there is adequate attention paid to the extent of post-surgical pain and function (ambulation).□ □ Parameters that will be continually monitored in these mice include impaired□ circulation in the foot, intense lethargy (as indicated by limited mobility, hunched posture,□ limited grooming), severe inflammation (as indicated by bright red coloration of the local tissue with□
1907-37248A	Lowe, Dawn	Mice, Mice	SOCIAL HOUSING	To monitor physical activities (wheel running capacity or cage activities), mice will be housed individually.
1907-37248A	Lowe, Dawn	Mice, Mice	ENVIRONMENTAL ENRICHMENT	To monitor physical activities (wheel running capacity or cage activities), mice will be housed individually. □ □ The environment will influence the physical activity of the mice which in turn will affect skeletal muscle function. Because the magnitude of physical activities will likely vary depending on hormonal status, an enriched environment would add another level of variables that at this time we do not wish to explore.
1907-37238A	Chen, Chi	Mice	SOCIAL HOUSING	see protocol for details

1907-37217A	Koewler, Nathan	Mice, Rat	EUTHANASIA METHOD	RAR veterinary staff are proficient in this procedure and in the case of health conditions where CO2 may not be readily available this procedure will be used to provide
1907-37216A	[redacted]	Dog, Frog (Xenopus), Gerbil, Goat, Guinea Pig, Hamster, Mice, Nonhuman Primate (Macaques), Pig (Biomedical), Rabbit, Rat, Sheep (Biomedical), Turkey, **ALL SPECIES DESIGNATION **, Cow (Biomedical), Chinchilla, Ferret, Cat	SOCIAL HOUSING	see protocol for details
1907-37216A	[redacted]	Dog, Frog (Xenopus), Gerbil, Goat, Guinea Pig, Hamster, Mice, Nonhuman Primate (Macaques), Pig (Biomedical), Rabbit, Rat, Sheep (Biomedical), Turkey, **ALL SPECIES DESIGNATION **, Cow (Biomedical), Chinchilla, Ferret, Cat	EUTHANASIA METHOD	Euthasol® 0.22 ml/kg IV (~86 mg/kg pentobarbital)

1907-37213A	Junge, Harald	Mice	TAIL BIOPSY	We require a method of animal identification that is unambiguous and permanent and can be used for mice in developmental studies (postnatal pups, genotyping results required at P8) or in aging studies over 1 year. We cut toes after they are no longer webbed in mice P6-P8 and use the toes for genotyping. Aseptic practices are followed. In
1907-37213A	Junge, Harald	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	We observed in preliminary experiments that Mdm2 ECKO mice die about 1 week after tamoxifen induced recombination using a Cdh5-ERT2 Cre driver. The cause of death appears to be pleural effusion. We euthanize the mice 5-6 days after tamoxifen injection, at which time animals are showing the first sign of being lethargic. We euthanize them as early as possible to prevent distress but as late as necessary until the relevant phenotype (blood-retina barrier defects) manifests. If the animal
1907-37213A	Junge, Harald	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	sulfo-NHS biotin is not available USP grade, it will be ordered from Sigma. It will be made up fresh from powder in PBS (0.3 mg/ml) and sterile filtered. This agent is frequently used in blood-brain
1907-37212A	Dickerson, Erin	Mice	EUTHANASIA METHOD	Sedation if not normally used in combination with barbiturate
1906-37191A	Pravetoni, Marco	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	In order to assess the efficacy of the vaccine, the infection must be allowed to progress for 72 hours to analyze the difference between vaccinated and unvaccinated groups. While death will not be the primary endpoint, it is known in this
1906-37189A	Ponder, Julia	Bird (Other)	EUTHANASIA METHOD	Grouse are being captured in the field with a noose pole - if a rare injury occurs, there are limited options in the field. Rapid cervical dislocation is the most expedient
1906-37182A	Hecht, Stephen	Rat	ENVIRONMENTAL ENRICHMENT	see protocol for details

1906-37182A	Hecht, Stephen	Rat	SOCIAL HOUSING	see protocol for details
1906-37180A	More, Swati	Mice	FOOD/FLUID RESTRICTION RECORDKEEPING	I don't think we need a justification, but to clarify- lab staff will remove food from select cages 16 hours prior to testing and replace food at the appropriate time. These cages will be marked by lab staff. During all other times and for all un-marked
1906-37178A	Madill, Scott	Horse, Cow (Biomedical)	SOCIAL HOUSING	see protocol for details
1906-37178A	Madill, Scott	Horse, Cow (Biomedical)	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Caudal epidural analgesia only, animal is awake and standing (Bovine superovulation and embryo flush)
1906-37158A	McGaugh, Suzanne	Fish (Other)	SANITATION FREQUENCY	We use either or both under-gravel filters where the sediment waste on the gravel is siphoned□ out monthly or hang-on-tank charcoal filter systems where the charcoal cartridges are changed□ ~monthly. We will also have zeolite on hand to add to filters as needed, to protect further against□
1906-37158A	McGaugh, Suzanne	Fish (Other)	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	Weighing fish is exceptionally stressful as the fish has to be netted and transferred to a weigh cup. □ □ We will test sleep in these animals at 0days, 15days, and 30days at which point weight will be measured. Aside from those time points, we
1906-37154A	Cheeran, Maxim	Mice	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	This is a simple procedure taht is completed in less than a minute. anesthesia (if given) depth will only be measured at the beginning of the procedure. (Selection and breeding)

1906-37149A	Chen, Clark	Mice	MULTIPLE SURGERY	□ The two surgeries which are to be performed on the mice are a part of the same project. First, a brain tumor would be grown by intracranially implanting tumor cells. □ □ The intracranial implantation of the electrodes (platinum wires) would be done at Day 5 after injecting the tumor cells in the mice brain. The electrodes would be inserted on the two sides of the region of tumor cell implantation, such that this area lies (in its entirety) between the two electrodes. The procedure has been explained in the surgery section in detail. The electrodes would be fixed to the scalp and a dental cement would be used to fix the electrodes on the scalp, to make them immovable. The electrodes would be implanted both in the control group and the experimental group. However, the control group will not undergo electric field therapy.□ Since both the surgeries are intracranial, there might be functional deficit during or after the procedure. In case there is
1906-37149A	Chen, Clark	Mice	SOCIAL HOUSING	see protocol for details
1906-37147A	Pluhar, Liz	Dog, Dog	EUTHANASIA METHOD	It is not standard protocol to sedate pet dogs prior to euthanasia. Euthanasia will not be performed
1906-37143A	Gallaher, Daniel	Rat	SOCIAL HOUSING	see protocol for details

1906-37140A	Madill, Scott	Horse	MULTIPLE SURGERY	In veterinary practice, brood mares with a Caslick have it replaced each year (it is opened prior to foaling so the tissue does not tear and replaced subsequently). While our mares are unlikely to get a Caslick each year it is possible they could get another surgery related to their general care on the governing protocol. This would most likely be to sew up a laceration experienced through mishap or potentially placement of a subpalpebral lavage system to treat an ulcerated cornea. These are rare (generally <1-2 per year) but might happen and since our horses stay in the herd a long time it is possible that over multiple years a mare may have several minor surgeries to repair various
1906-37140A	Madill, Scott	Horse	72 HOUR POST-OP ANALGESIA POLICY	This is a simple skin incision and suturing, standard of care in veterinary practice for this surgery is no analgesia beyond the local
1906-37140A	Madill, Scott	Horse	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	This is a simple skin-deep incision and suturing performed under local anesthesia (with sedation if required). Standard of care in veterinary practice for this surgery is the animal is not specifically re-examined until suture removal. Should the incision break down there is no danger to the animal and
1906-37140A	Madill, Scott	Horse	SOCIAL HOUSING	see protocol for details
1906-37139A	Ponder, Julia	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	The goal is to determine if a hatch year raptor has the instinct to take live prey by demonstrating the ability to capture and kill said prey.
1906-37138A	Banik, Ratan	Mice, Rat	72 HOUR POST-OP ANALGESIA POLICY	We request not to give analgesics because we need for hyperalgesia to fully develop and analgesics may interfere with this process. Analgesic will be used if animals show excessive pain like behaviors (eg. vocalization, restlessness etc.). We and others lab extensively used this model. Based on our experience and available data, animals tolerate well this surgical procedure and do not show excessive pain behaviors.

1906-37138A	Banik, Ratan	Mice, Rat	EUTHANASIA METHOD	Animals can be subdued with a towel wrapped around them, allowing for injection of Euthasol. Mice will be euthanized with 0.2ml Euthasol (390 mg/ml sodium pentobarbital) Animals will be covered with a cloth to subdue them. Once they are
1906-37137A	Bradley, Elizabeth	Mice	SOCIAL HOUSING	see protocol for details
1906-37124A	Cheeran, Maxim	Mice	MULTIPLE SURGERY	The objective of this project is to study neuroinflammation after second injury and therefore it is essential to do second surgery on the same animal. We will perform craniotomy on both sides during the first surgery itself in order to minimize pain and distress during second surgery. The mice will be placed on a heating pad or under a heating lamp for recovery. Mice will be administered topical analgesic for pain control before surgery. Mice will be assessed daily for hydration and signs of distress. If animal cannot

1906-37124A	Cheeran, Maxim	Mice	72 HOUR POST-OP ANALGESIA POLICY	The animals will be monitored until they can independently maintain sternal recumbency or can stand and move about before leaving the surgery room. Pain post-surgery is expected due to injury to the scalp/skin incision. Animals will receive an application of lidocaine gel (2%) in and around the skin incision every 2 hours post-op as needed (evidence of discomfort, prolonged anorexia, etc.) to alleviate the irritation and pain associated with the surgery. From past experience animals recover from the surgery and return to normal behaviors (feeding, etc) within 12-24 h. In addition to normal food and water, moist food will be provided in a petri dish on the floor of the cage during first 24 hours to facilitate easy access to water and food and prevent dehydration. Mice will be assessed daily for hydration and signs of distress. If required 1cc fluids will be given SQ in consultation with the veterinarian. NSAIDs or other antiinflammatory drugs will not be administered to these animals at any point in the study as they will interfere with the immunological parameters that are central to this study (Gomaa, S.
1906-37113A	Griffith, Thomas	Mice	EUTHANASIA METHOD	All staff have been trained in and are competent at cervical
1906-37111A	Lund, Troy	Fish (Zebra fish)	72 HOUR POST-OP ANALGESIA POLICY	An IACUC exception is required for non-administration of analgesics after surgery, but is not required for tail snips in other situations where bone is not cut. In this scenario, zebrafish tails are comprised of cartilage and soft tissues (like the tip of a tail of a pre-weaning mouse

1905-37106A	Banik, Ratan	Rat	72 HOUR POST-OP ANALGESIA POLICY	We request not to give analgesics because we need for hyperalgesia to fully develop and analgesics may interfere with this process. Methylene blue may provide analgesia in experimental animals. □ If animals are in excessive pain (vocalization, restlessness) and lose 10% of its weight, it will be euthanized. Based on our experience and available data, animals tolerate well this surgical
1905-37106A	Banik, Ratan	Rat	EUTHANASIA METHOD	Rats are under minimal stress when injected for overdose.
1905-37105A	Munderloh, Ulrike	Hamster, Llama	SOCIAL HOUSING	see protocol for details
1905-37103A	Bianco, Richard	Sheep (Biomedical)	MULTIPLE SURGERY	As described in procedure, goal is to evaluated autologous stem cells in vascular graft after in vitro differentiation. In Vitro harvest and differentation take upto 2 weeks. The fat is harvested from each animal, isolated, and coated on graft's lumen surface prior to being implanted back in the same animal. Hence this require two procedures on each animal. (Adipose Fat Harvest) As described in study design, animals are implanted with engineered graft coated with autologous stem cells. To evaluate

1905-37094A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	Animals have previously been instrumented with a central vascular access port. The placement of a vascular access port is considered a minor surgical procedure (peripheral limb, not entering a major body cavity), essentially similar to routine catheter placement with the notable exception that the access site is placed underneath the skin. VAPs improve safety, and increase animal comfort when intermittent or recurrent venous access is required by avoiding painful 'catheter starts'. VAPs also allow NHPs to participate fully in enrichment programs and social group activities without the restrictions inherent in conventional approaches. This procedure is required to infuse the test chemical ablation under investigation in this study and is designed to mimic the approach intended in

1905-37092A	Ondrey, Frank	Mice	TUMOR ENDPOINT CRITERIA	Endpoint criteria include >20% weight loss; a body condition score of less than or equal to 2 (based on Ullman-Cullere 1999); primary flank solid tumor tissue measured by calipers to be of excessive size (>2cm length in any dimension) or impairing mobility; any health problems refractory to medical intervention such as labored breathing; or on recommendation of the veterinary staff. Swollen tissue, but palpably fluid-containing, either underneath or adjoining solid tumor tissue will not be considered solid tissue in immunocompetent mice bearing tumors as this study is investigating an immunotherapy where enhanced infiltrates and edema concurrent with necrosis are features of enhanced T-cell activity described as pseudoprogression (Journal of Clinical Oncology, Vol 33, No 31 (November 1), 2015: pp 3541-3543). See http://jco.ascopubs.org/content/33/31/3541.full. Mice bearing swollen tissue will still be subject to all other endpoints including impaired gait, labored breathing, and recommendation of veterinary
1905-37090A	Chen, Wei	Cat	NON-PHARMACAUTICAL GRADE COMPOUNDS	We will use pharmaceutical-grade Pancuronium Bromide whenever it is available, the non-pharmaceutical compound will only be used when the pharmaceutical-grade substance is not available. In that case, the non-pharmaceutical grade pancuronium will be prepared acutely using sterilized saline and container. (General preparation) The pharmaceutical-grade Pancuronium Bromide does not available, thus, non-pharmaceutical compound will be used. The non-pharmaceutical grade

1905-37065A	Rao, Savita	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	In the past we have used pharmaceutical grade pancuronium bromide from Sicor™, Sicor Pharmaceuticals, Inc., Irvine, CA. However, this company was acquired by another company which no longer manufactures this product. We have been unable to find other sources for procuring pharmaceutical grade pancuronium bromide. Therefore, we use pancuronium bromide from Sigma-Aldrich, St. Louis, MO (Cat. No. P1918). Pancuronium bromide will be dissolved in tissue culture grade water at a concentration of 2 mg/ml. The solution will be sterile filtered,
1905-37062A	Dong, Zigang	Mice	MULTIPLE SURGERY	We must perform multiple biopsies in order to track hair growth related marker protein expression between control animals and those receiving inhibitor over time. These samples are superficial and should heal
1905-37059A	Wilcox, George	Rat, Mice	72 HOUR POST-OP ANALGESIA POLICY	The intention of the spared nerve injury is to induce a state simulating the hyperalgesia experienced in neuropathic pain. Administration of analgesics would be likely to alter the course of hyperalgesia development, defeating the goal of
1905-37059A	Wilcox, George	Rat, Mice	EUTHANASIA METHOD	Cervical dislocation may be indicated at times for emergency humane euthanasia where provision of prior isoflurane anesthesia is either not possible or would prolong
1905-37059A	Wilcox, George	Rat, Mice	SOCIAL HOUSING	see protocol for details
1905-37046A	Sorensen, Peter	Fish (Other)	72 HOUR POST-OP ANALGESIA POLICY	Fish will be released in the wild making detailed monitoring and administration of analgesics impossible□
1905-37046A	Sorensen, Peter	Fish (Other)	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Fish will be released in the wild. The movement of all fish will then be monitored as part of the experiment. (Tagging)

1905-37039A	Garry, Mary	Pig (Biomedical), Pig (Biomedical)	ENVIRONMENTAL ENRICHMENT	It is possible that single housing will be required if: 1) there is only one animal in the litter 2) littermates die or are euthanized 3) single housing is needed to minimize transmission of illness among piglets or 4) if
1905-37039A	Garry, Mary	Pig (Biomedical), Pig (Biomedical)	SOCIAL HOUSING	It is possible that we will need an exception to social housing for the reasons stated in 17B. If possible, however, we will house socially.
1905-37035A	Masino, Mark	Fish (Zebra fish), zebrafish embryos/larvae	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	NA; these are larval fish. (Non-survival surgery) NA; these are larval fish. (Cell Targeted Laser Ablation) NA; these are larval fish. (Electrophysiology) NA; these are larval fish. (In vivo neuronal labeling) NA; Tricaine used to euthanize fish. (Fixation for IHC and ISH)
1905-37029A	Finger, Erik	Mice, Rat	EUTHANASIA METHOD	Sedation is used for training the cervical dislocation technique. Isoflurane is used at 3-4X MAC and then dislocation performed under anesthesia. In accordance with changes in IACUC policy,
1905-37028A	Finger, Erik	Mice	MULTIPLE SURGERY	In order to validate tolerance in long term graft survivors, a small subset of long term survivors will have a second skin grafting or islet transplant performed. This is to document donor specific tolerance and is an crucial immunologic outcome. Additionally, some islet transplant recipients will have a unilateral nephrectomy in order to document that long term graft function is due to the graft and not
1905-37028A	Finger, Erik	Mice	72 HOUR POST-OP ANALGESIA POLICY	No incisions are made. Insulin pellets are placed by subcutaneous injection (with 14 g trochar). No pain medication has been required and pellets are well tolerated in

1905-37028A	Finger, Erik	Mice	EUTHANASIA METHOD	Sedation is used for training the cervical dislocation technique. Isoflurane is used at 3-4X MAC and then dislocation performed under anesthesia. In accordance with changes in IACUC policy,
1905-37019A	Gallaher, Daniel	Rat	SOCIAL HOUSING	see protocol for details
1905-37011A	Faulk, Christopher	Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details
1905-37011A	Faulk, Christopher	Mice	SOCIAL HOUSING	see protocol for details
1904-37007A	Olson, Erin	Fish (Other), Fish (Other), Fish (Other), Fish (Other), Fish (Other), Fish (Zebra fish), Reptile (Other), Fish (Other)	NON-PHARMACAUTICAL GRADE COMPOUNDS	see protocol for details
1904-37005A	Kozak, Kenneth	Amphibian (Other), Rodent (Other - Non-USDA), Bird (Other), Fish (Other), Reptile (Other), Other* (Non-USDA), Mid-sized and large mammals	EUTHANASIA METHOD	Eurthanized animals will be preserved as scientific museum specimen. Additional methods to ensure euthanasia (e.g. decapitation, cervical dislocation) will destroy the future scientific value of animals as museum specimens. Decapitation and/or cervical
1904-36992A	Arai, Shiori	Dog	EUTHANASIA DEATH/MORIBUND ENDPOINT	N/A
1904-36985A	Smanski, Michael	Fish (Zebra fish), Fish (Other)	EUTHANASIA DEATH/MORIBUND ENDPOINT	We are testing embryonic lethality of gene overexpression. Typically this will be assessed before 72 hrs post fertilization, but in rare cases we might need to look for lethality in
1904-36985A	Smanski, Michael	Fish (Zebra fish), Fish (Other)	NON-PHARMACAUTICAL GRADE COMPOUNDS	see protocol for details

1904-36978A	van Berlo, Jop	Mice, Rat	MULTIPLE SURGERY	we sometimes add osmotic minipumps to other more invasive procedures, such as cardiac pressure overload or cardiac ischemic injury. The goal would be to add thymidine anologs such as BrdU or EdU to perform pulse chase experiments of proliferative cells to measure regeneration. Alternatively, we could add neurohormonal stimulation in strains of mice that are especially resistant to cardiac injury. (Cardiac Ischemic Injury) This is a minimally invasive procedure that we sometimes add to other more invasive procedures, such as cardiac pressure overload or cardiac ischemic injury. The goal would be to add thymidine anologs
1904-36978A	van Berlo, Jop	Mice, Rat	EUTHANASIA METHOD	We will only perform decapitation using sharp scissors in neonatal pups younger than post-natal day 7 We will only use this method of euthanasia in newborn pups younger than post-natal day 7, where we will use sharp scissors to quickly
1904-36967A	Li, Yuzhi	Pig (Agricultural)	72 HOUR POST-OP ANALGESIA POLICY	Castration is a routine practice for piglet processing after birth. Currently, castration of piglets within the first week of birth without administering analgesia is the
1904-36960A	O'Connell, Timothy	Mice	SOCIAL HOUSING	see protocol for details

1904-36948A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	Animals have previously been instrumented with a central vascular access port. The placement of a vascular access port is considered a minor surgical procedure (peripheral limb, not entering a major body cavity), essentially similar to routine catheter placement with the notable exception that the access site is placed underneath the skin. VAPs improve safety, and increase animal comfort when intermittent or recurrent venous access is required by avoiding painful 'catheter starts'. VAPs also allow NHPs to participate fully in enrichment programs and social group activities without the restrictions inherent in conventional approaches. □ □ This procedure is required to implant the microcapsules and is designed
1904-36947A	Toth, Ferenc	Goat	EUTHANASIA METHOD	Barbiturate overdose will be performed by an experienced investigator with a single venipuncture. Administering a sedative before the barbiturate overdose would only prolong the

1904-36933A	Patterson, Ned	Dog, Dog, Dog	MULTIPLE SURGERY	The main objectives for all the studies need intracranial EEG monitoring and the device working. If a device fails, then the study would end for that dog and a new dog obtained, the supply of research dogs with spontaneous seizures is not large, and to also reduce numbers of dogs we plan to re-implant the device if needed, Under the previous protocol this was permitted and we did replace the device in 2 dogs (one now deceased, the other on the current protocol). Going forward, as some of these dogs are and will be here for years, the PI will consult with the RAR vet about any concurrent health conditions, and the current seizure status of the dog before going ahead with a second intracranial surgery, and not proceeding if the concurrent conditions are deemed to be serious enough that the dog may not do well with the surgery and/or may not survive long enough post surgery to be valuable to the results. Specifically No second intracranial surgery will be performed without consultation with and approval by the RAR area vet, with their
1904-36928A	Pluhar, Liz	Dog, Dog	EUTHANASIA METHOD	It is not standard protocol to sedate pet dogs prior to euthanasia.
1903-36921A	Lim, Hubert	Guinea Pig	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	We need to be outside of our sound chamber when performing the neural recordings to avoid electrical and acoustic noise contamination. Since our protocols usually requires up to 30 minutes of recordings for each session, we need to be able to
1903-36921A	Lim, Hubert	Guinea Pig	SOCIAL HOUSING	see protocol for details

1903-36919A	Willette, Michelle	Chicken, Bird (Other)	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	This lab consists of 50 birds undergoing light anesthesia for non-painful procedures. No individual records will be kept. (Exam and venipuncture) This lab consists of 50 birds under
1903-36911A	Andrade, Rafael	Rabbit	MULTIPLE SURGERY	Implantation of the construct into the omentum will allow for vascularization of the graft prior to
1903-36911A	Andrade, Rafael	Rabbit	SOCIAL HOUSING	see protocol for details
1903-36906A	Asakura, Atsushi	Mice	MULTIPLE SURGERY	24 hours after muscle injury, cell transplantation will be performed. □ □ □ After surgery is completed, animals will be cared and examined on a day bases by member of our□ research staff, PI (Atsushi Asakura), Dr. Shuichi Watanabe (Research Associate), Mayank Verma□ (Junior Scientist), or [redacted] (Undergraduate Student). They will also monitor those□ animals everyday. Animal Facility staff is also monitoring regularly. The information will be transmitted□ by phone to PI's office and PI's laboratory. During weekend the information will be transmitted by□ phone to PI's cell phone and by E-mail. Within 24 hours, the animals develop evidence(s) of distress□ will be performed for a terminal study.□ □ To alleviate pain during operation, we will frequently check the level of anesthesia after intraperitoneal injection of Avertin. We are going to put some soft bedding in the cages. For post-surgical analgesia,□ we will use a subq. injection of 5 mg/kg ketoprofen every day for 3

1903-36906A	Asakura, Atsushi	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Scientific justification for use of non-pharmaceutical grade Avertin: Avertin has been widely used as one of the anesthetic agents for mice. Accordingly, RAR site mentioned that "Avertin® is a non-pharmaceutical grade compound. Currently, there is no equivalent veterinary or human drug is available for experimental use of Avertin®. The highest grade equivalent chemical reagent will be
1903-36906A	Asakura, Atsushi	Mice	SOCIAL HOUSING	see protocol for details
1903-36904A	Farrar, Michael	Mice	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	We are placing them on antibiotics - this should not affect their weight significantly. We certainly don't anticipate weightloss due to antibiotic administration. The
1903-36903A	Bereiter, David	Rat	MULTIPLE SURGERY	Exorbital gland removal and intra-CNS cannula placement will be performed concurrently. This may not qualify as multiple survival surgeries as there is no inter-
1903-36903A	Bereiter, David	Rat	72 HOUR POST-OP ANALGESIA POLICY	We have received previous permission (7.22.13) from IACUC that a single dose of ketoprofen is sufficient for the minor surgeries we propose. We will change the protocol to use carprofen instead. (Exorbital Gland removal) We had received permission (7.22.13) from IACUC to use

1903-36903A	Bereiter, David	Rat	NON-PHARMACAUTICAL GRADE COMPOUNDS	Pharmaceutical grade formulations do not exist. Urethane is necessary because barbiturates often lead to unreliable OOemg activity. Please note that all animals are checked for response to toe pinch at 5 minute intervals to assess adequate anesthesia. (Thoracotomy) Pharmaceutical grade formulations do not exist. Barbiturates are not used here since they cause spontaneous muscle twitching that interferes with the evoked activity. (Dorsal brainstem surface exposure (electrophysiology)) Exorbitant cost increases effectively makes pharmaceutical grade formulations unavailable. (Ultraviolet light irradiation)
1903-36900A	Bangalore Kodandaramaiah, Suhasa	Mice, Rat	MULTIPLE SURGERY	We seek exception in surgeries when a virus injection (S2) is performed. We have previously found that in cases where virus injection is immediately followed by the device implantation (see procedures S3, S4 or S5), that the virus labeling is altered by the small brain displacements induced by device insertion. Since the viruses can take weeks to express, implanting the device later, after the viruses have fully expressed, minimizes the chance of a device-related deterioration. Thus, it may be very useful for experiments in which both Subprocedures S2 and S3 (or S4 or S5) are required, that an initial surgery with just procedure S2 can be performed (e.g., the viral infusion), and then the animal fully recovered, and then, 7-120 days
1903-36900A	Bangalore Kodandaramaiah, Suhasa	Mice, Rat	SOCIAL HOUSING	see protocol for details

1903-36898A	Chen, Wei	Rat, Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Chloralose does not available, thus, non-pharmaceutical compound will be used. (Varying Brain States Using Different Anesthetic Drugs) The pharmaceutical-grade Pancuronium Bromide does not available, thus, non-pharmaceutical compound will be used. (Varying Brain States Using Different Anesthetic Drugs) Pharmaceutical-grade pancuronium bromide is not available. (Functional stimulation)
1903-36889A	Yamamoto, Masato	Mice	TUMOR ENDPOINT CRITERIA	Pain level C.□ This procedure in SA3f-1 and 3g-1 may lead to Pain Level C due to ulceration.□ When treatment works, some times ulceration is observed on the treated tumor as a result of tumor necrosis. We will observe the small ulceration up to 7 days unless continuous bleeding or infection is observed or reaching other euthanization criteria. We will give analgesics as described in Health and Monitoring. □ Those which show large quantity bleeding, infection, or deterioration of general condition, will be euthanized.□ Non-drug methods for supportive
1903-36887A	Chester-Jones, Hugh	Cow (Agricultural)	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	Bi-weekly body weights have been shown to be adequate to detect differences in□ dairy calf growth in previous SROC calf studies. (Pre- and post weaning performance and health of nursery dairy calves when fed a proprietary
1903-36856A	Mensinger, Allen	Fish (Other), goldfish, round goby, Fish (Other)	NON-PHARMACAUTICAL GRADE COMPOUNDS	see protocol for details

1903-36845A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	The placement of a vascular access port is considered a minor surgical procedure (peripheral limb, not entering a major body cavity), essentially similar to routine catheter placement with the notable exception that the access site is placed underneath the skin. VAPs improve safety, and increase animal comfort when intermittent or recurrent venous access is required by avoiding painful 'catheter starts'. VAPs also allow NHPs to participate fully in enrichment programs and social group activities without the restrictions inherent in conventional approaches. □ □ Animals may subsequently be instrumented with hepatic portal access if they are intended for enrollment on an islet transplantation protocol that delivers islets using the standard intraportal route. □ In this situation, instrumentation allows animals to complete all surgical manipulation prior to induction of the disease state. (Central vascular access port placement (b))
1903-36840A	Chan, Sunny	Mice	MULTIPLE SURGERY	In order to achieve successful engraftment of muscle stem and progenitor cells the muscle has to undergo an injury two days before transplantation to induce an essential injury response in the tissue. Muscle injection injury will be performed as described in the previous section, pain and distress in the animals will be monitored for 3 days post-procedure. Because the effects of analgesic compounds on muscle regeneration are unknown, and because we want to examine
1903-36840A	Chan, Sunny	Mice	72 HOUR POST-OP ANALGESIA POLICY	Because the effects of analgesic compounds on muscle regeneration are unknown, and because we want to examine the role of inflammatory cells in skeletal muscle

1903-36840A	Chan, Sunny	Mice	EUTHANASIA METHOD	Embryos 15 days of gestation or greater will be decapitated.
1902-36831A	Newman, Eric	Mice	EUTHANASIA METHOD	Staff are well-trained on the cervical dislocation procedure.Training records are maintained and updated to ensured staff are qualified to perform the procedure. Cervical dislocation in conscious condition provides a means to recover tissues and body fluids that are uncontaminated by anesthesia. It also provides a means of obtaining anatomically undamaged brain tissue for study. Handling and restraint required to perform this technique may be stressful to animals.The equipment used to perform cervical dislocation will be maintained in good working condition. Staffs are well-trained on decapitation procedure.Training record is maintained and updated to ensured staff are qualified to perform the procedure. Decapitation provides a means to recover tissues and body fluids that are chemically uncontaminated when performed without anesthesia. It also provides a means of obtaining anatomically undamaged brain tissue for study. Handling and restraint required to perform this technique may be distressful to animals.The
1902-36825A	Masopust, David	Mice	72 HOUR POST-OP ANALGESIA POLICY	Post-operative analgesic therapy is contraindicated because the objective of the procedure is to determine whether the experimental treatment causes hypersensitivity. Provision of analgesics would inhibit the neurochemical changes required
1902-36825A	Masopust, David	Mice	EUTHANASIA METHOD	All personnel performing cervical dislocation must prove themselves extremely competent to prevent inhumane euthanasia. Their training

1902-36813A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	Animals have previously been instrumented with a central vascular access port. The placement of a vascular access port is considered a minor surgical procedure (peripheral limb, not entering a major body cavity), essentially similar to routine catheter placement with the notable exception that the access site is placed underneath the skin. VAPs improve safety, and increase animal comfort when intermittent or recurrent venous access is required by avoiding painful 'catheter starts'. VAPs also allow NHPs to participate fully in enrichment programs and social group activities without the restrictions inherent in conventional approaches. □ □ This procedure is required to infuse the test therapy under investigation
1902-36795A	Pravetoni, Marco	Mice	BLOOD COLLECTION LIMIT	Animal will be euthanized by this method and will not survive the decapitation and subsequent blood collection (Trunk blood collection
1902-36788A	Ward, John	Frog (Xenopus)	MULTIPLE SURGERY	The main reason for using survival surgery in this protocol is to limit the number of frogs used. Some frogs (25%) do not have suitable oocytes, those that do can be used multiple times with good results. NIH guidelines permit 5 survival surgeries to remove oocytes and a sixth terminal surgery. If we did
1902-36788A	Ward, John	Frog (Xenopus)	SOCIAL HOUSING	see protocol for details
1902-36781A	Lee, Michael	Mice	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Once the animal is under deep anesthesia, they are euthanized within 10 minutes. (Intracardial Purfusion)
1902-36781A	Lee, Michael	Mice	SOCIAL HOUSING	see protocol for details
1902-36774A	Lee, Michael	Mice	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Once the animal is under deep anesthesia, they are euthanized within 10 minutes. (Intracardial Purfusion)

1902-36774A	Lee, Michael	Mice	EUTHANASIA METHOD	1. Decapitation of pregnant female mice is performed secondary to CO2-based euthanasia to ensure complete euthanasia.□ 2. Direct decapitation of mouse embryo is accepted procedure.□ 3. Direct decapitation of mouse pups (P0-1) is acceptable procedure. □ **Based on the AVMA guidelines, decapitation is an acceptable form
1902-36774A	Lee, Michael	Mice	SOCIAL HOUSING	see protocol for details
1902-36759A	Lee, Michael	Mice	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Once the animal is under deep anesthesia, they are euthanized within 10 minutes. (Intracardial Purfusion)
1902-36759A	Lee, Michael	Mice	SOCIAL HOUSING	see protocol for details
1901-36726A	Conzemius, Michael	Dog	MULTIPLE SURGERY	Arthroscopy is required for baseline and post-study treatment. This does involve anesthesia, but is a minimally invasive procedure. Anesthesia is used to minimize pain and distress. Post-operative pain will be treated with nonsteroidal anti-
1901-36722A	Lowe, Dawn	Mice	MULTIPLE SURGERY	Simultaneous with (0 time point) or 1,3,5, or 7 days after barium chloride injury we will measure physiological function of the muscle in the anesthetized mouse (in vivo contractile analysis). This is an extremely minimally invasive procedure in which only two small electrodes are place subcutaneously around the peroneal nerve of the leg. Immediately after this measurement, while the mouse is still anesthetized the skin will be

1901-36722A	Lowe, Dawn	Mice	72 HOUR POST-OP ANALGESIA POLICY	Because we will be examining the role of macrophages in skeletal muscle autophagy/damage/regeneration, such as that which is induced by barium chloride injury, it is necessary to restrict the use of analgesia unless serious negative consequences result. We will continually work with the vet staff in order to be sure that there is adequate attention paid to the extent of post-surgical pain. □ □ If an analgesic is prescribed by RAR, analgesics that have fewer anti-inflammatory effects could be used in these cases, such as sustained release buprenorphine will be used first. Local anesthetics such as lidocaine or bupivicaine (sodium channel blockers) may also be used as regional analgesia if an analgesic is deemed necessary or if sustained release buprenorphine is not suitable/working. The most commonly used local anesthetic agents are Lidocaine and Bupivacaine. Lidocaine acts faster (within 2-5 minutes of injection) but
1901-36715A	Lee, Michael	Mice	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Once the animal is under deep anesthesia, they are euthanized within 10 minutes. (Intracardial Purfusion)
1901-36708A	Faulk, Christopher	Mice	SOCIAL HOUSING	see protocol for details
1901-36697A	Patterson, Ned	Dog, Dog, Dog, Dog	PRIMARY ENCLOSURE SIZE/SPACE	Yes. The size of the ICU kennels are intended for animals which are in need of intensive care and are kept in a more restricted space to keep them quiet. These animals on this protocol will be recovering from

1901-36697A	Patterson, Ned	Dog, Dog, Dog, Dog	MULTIPLE SURGERY	The main objectives for all the studies need intracranial EEG monitoring and the device working. If a device fails, then the study would end for that dog and a new dog obtained, the supply of research dogs with spontaneous seizures is not large, and to also reduce numbers of dogs we plan to re-implant the device if needed, Under the previous protocol this was permitted and we did replace the device in 2 dogs (one now deceased, the other on the current protocol). Going forward, as some of these dogs are and will be here for years, the PI will consult with the RAR vet about any concurrent health conditions, and the current seizure status of the dog before going ahead with a second intracranial surgery, and not proceeding if the concurrent conditions are deemed to be serious enough that the dog may not do well with the surgery and/or may not survive long enough post surgery to be valuable to the results. Specifically No second intracranial surgery will be performed without consultation with and approval by the RAR area vet, with their
1901-36697A	Patterson, Ned	Dog, Dog, Dog, Dog	ENVIRONMENTAL ENRICHMENT	As the dogs are recovering from surgery, and need to be quiet and not have the EEG leads in the neck disturbed so for the 1-3 days of
1901-36697A	Patterson, Ned	Dog, Dog, Dog, Dog	SOCIAL HOUSING	As the dogs are recovering from surgery, and need to be quiet and not have the EEG leads in the neck
1901-36686A	Denton, Robert	Amphibian (Other)	SANITATION FREQUENCY	see protocol for details
1901-36686A	Denton, Robert	Amphibian (Other)	ENVIRONMENTAL ENRICHMENT	see protocol for details

1901-36681A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	Prior to training an animal to control his eye position, a head post is implanted in an aseptic surgical procedure to permit monitoring of eye position (below). The animals is then trained to perform the task while maintaining fixation on a small spot on a video display under head restraint, and with some tasks to make specific eye movements to visual targets. This fixation control is necessary to insure that portion of the retina on which the stimuli fall is not an uncontrolled variable. □ □ Up to 12 months of training may be needed before an animal performs sufficiently well to allow us to collect neurophysiological data. When all training is complete, the animal undergoes another recovery surgery to implant an recording chamber.□ □ Implanting chambers in separate surgeries is scientifically justified because they have a limited useful lifetime. The multiple surgeries are needed for the scientific objectives of the experiments, and are related components of the research project. The stepwise surgical preparation of the animal also subjects the animals to a small number of short surgeries,

1901-36656A	Toth, Ferenc	Pig (Biomedical)	MULTIPLE SURGERY	In the proposed research project, we intend to perform a primary surgical procedure during which an intravascular micro catheter inserted through the carotid artery is used to embolize the vascular supply of the femoral head. Monitoring the effects of the primary surgical procedure requires subsequent angiographic studies that also require access to the carotid artery. Thus, the second and potentially third and fourth surgical procedures (performed at least 7 days apart) will entail only a minor cut-down procedure to the carotid artery (alternating the left and the right side) in anesthetized animals to allow insertion of the angiographic catheter and completion of the angiography. These follow up surgeries are expected to be of very short duration (15-20 min) and expected to cause only minimum morbidity, stress, and discomfort. These 2nd, 3rd, and 4th surgical procedures that are limited to surgical access to the
1901-36656A	Toth, Ferenc	Pig (Biomedical)	SOCIAL HOUSING	see protocol for details
1901-36655A	Waye, Heather	salamander	72 HOUR POST-OP ANALGESIA POLICY	see protocol for details
1901-36655A	Waye, Heather	salamander	ENVIRONMENTAL ENRICHMENT	see protocol for details
1901-36654A	Grande, Andrew	Rat, Mice	MULTIPLE SURGERY	Animals will be given a small incision in the femoral vein to administer cell treatment and/or Ferumoxytol injections. This will be done to ensure complete delivery of all therapeutic cells and contrast agent. Because the incision will be small and rats will be administered analgesics, the additional pain and distress experienced should be minimal. Prior to this procedure, rats undergo

1812-36613A	Liu, Liang	Mice	MULTIPLE SURGERY	Skin biopsy will be performed up to 3 times. There are two weeks between any survival surgery. Maximum of 3 survival surgeries per animal. These are minor survival surgeries. The expected duration of
1812-36613A	Liu, Liang	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	We do not need an exception. (Skin Biopsy)
1812-36613A	Liu, Liang	Mice	SOCIAL HOUSING	see protocol for details
1812-36610A	Lesne, Sylvain	Mice	MULTIPLE SURGERY	One surgery is to perform AAV injections and the other is to perform the subsequent cranial window surgery. These are essential components of the same project. There will be no additional pain or distress due to having an additional survival surgery and only animals that are deemed healthy post the initial surgery will move onto the
1812-36595A	Chen, Clark	Mice	MULTIPLE SURGERY	Intratumoral injection is the only approach for NK cells effectively getting to GBM in orthotopic tumor model due to blood-brain barrier. Mice will be treated with Buprenorphine SR to cover the 72 hour post-operative period. Mice will
1812-36575A	Modiano, Jaime	Mice	EUTHANASIA METHOD	1. Cervical dislocation is used because organ congestion must be avoided to assess tumor dissemination and architecture. A common side effect of sedatives, barbiturates, and CO2 inhalation is congestion, which can obscures pathologic changes in vascular organs and tumor vasculature, and can thus render experiments moot (unable to analyze vascular effects of genetic alteration or treatment). □ □
1811-36558A	Zhitnitskiy, Perle	Pig (Agricultural)	SOCIAL HOUSING	see protocol for details
1811-36497A	Barker, Fredrick	Bird (Other)	EUTHANASIA METHOD	Field conditions without access to CO2

1811-36490A	Pravetoni, Marco	Rat, Mice	MULTIPLE SURGERY	This study requires the implantation AND explantation of an osmotic minipump. Explantation is required for two reasons. 1) If the pump remained in the rat, drug would continue to be released and would affect assay results. 2) Removal of the pump allows us to record the weight of the pump to get an accurate description of how much drug was administered within the time-frame studied (doing so following termination of the animal would add extra time for drug delivery).□ □ Signs that will prompt additional analgesia□
1811-36490A	Pravetoni, Marco	Rat, Mice	BLOOD COLLECTION LIMIT	Animal will be euthanized by this method and will not survive this blood collection. (Trunk blood
1810-36480A	El-Ashry, Dorraya	Mice	TUMOR ENDPOINT CRITERIA	In order to assess the relationship between metastatic burden as measured by IVIS (photon flux) and the visualization of macrometastases, we will be performing a pilot study which will allow the animals to live up to 10 weeks past injection of tumor cells. This is necessary (Tail vein injection of breast cancer cells) In order to assess the full extent of which FAP-AT reduces tumor burden and metastases, we need to be able to observe the control animals up until the state at which
1810-36480A	El-Ashry, Dorraya	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	In order to assess the full extent of which FAP-AT reduces tumor burden and metastases, we need to be able to determine a curve of metastatic burden as measured by IVIS versus macro-metastases that can be observed by eye. This will enable us to choose an endpoint where we can measure the full extent of drug efficacy by IVIS without having large numbers of

1810-36461A	Parr, Ann	Rat	MULTIPLE SURGERY	The rat must first be injured and recover to model a chronic spinal cord injury so that we can test our scar ablation techniques and cell transplantation. Pain and distress will be controlled through analgesics and antibiotics.□ (Spinal Cord Injury) The rat must first be injured and the injury allowed to become chronic to test rose bengal scar clearance efficacy, then, the animal must be allowed to recover/secondary inflammatory response must
1810-36460A	Townsend, DeWayne	Mice, Mice	MULTIPLE SURGERY	Ovariectomy will be performed early in life and is expected to be completely healed in mice that will subsequently undergo additional surgical procedures, most commonly osmotic pump
1810-36460A	Townsend, DeWayne	Mice, Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Several of our assay create a significant cardiac injury. This injury can result in a moribund state. In some animals this period of moribundity is temporary and the mice will eventually recover. In order to separate mice that will ultimately survive from those with terminal dysfunction mice are allowed to remain in a persistent moribund state. During these times,
1810-36460A	Townsend, DeWayne	Mice, Mice	SOCIAL HOUSING	see protocol for details

1810-36452A	Collister, John	Rat	MULTIPLE SURGERY	The multiple surgeries required in this study cannot be combined into one due to the severity and length of the individual procedures and recovery time required for the health of the animals. Specifically, the first surgery in the study requires a stereotaxic device, which would impede the success of the other surgeries and requires a different anesthetic regimen. The second procedure requires an extended recovery to allow for compensatory renal adaption. The third surgery requires that the first two surgeries, plus the collection of data over the control period, are already completed. (Electrolytic lesion of the OVLT) The multiple surgeries required in this study cannot be combined into
1810-36452A	Collister, John	Rat	ENVIRONMENTAL ENRICHMENT	Since food and water intake will be strictly monitored, any environmental enrichment (e.g. gnawing, chewing) could adversely affect the data, and due to the nature of the continual recording of blood pressure and heart rate in each animal individually, social
1810-36452A	Collister, John	Rat	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	Food is not being restricted, and we strive to avoid any unnecessary handling of the rats. Food and fluid intake are measured and recorded daily, as well as urine output. However, upon noticing any unusual hydration status or behavioral changes, rats will be weighed, and if the status persists or the weight of the animal is outside of what is
1810-36452A	Collister, John	Rat	SOCIAL HOUSING	Due to the nature of the continual recording of blood pressure and heart rate in each animal individually, social housing will be unacceptable due to cross-talk of

1810-36447A	Rothwell, Patrick	Mice	MULTIPLE SURGERY	We are requesting exceptions for two different series of experiments, described separately below. □ □ First, Project 1 involves comparison of several patterns of opioid delivery. Our scientific objectives require strict control over the total duration of chronic morphine exposure (7 days), making it scientifically necessary to remove the pumps at this time point. The pumps must also be removed prior to testing morphine conditioned place preference, to avoid any interference with mobility during this behavioral test.□ □ Second, Projects 2 and 3 involve viral expression of light-sensitive ion channels ("opsins"), to permit "optogenetic" control of specific brain cell types and synaptic connections. One caveat to this approach is that, even with viral expression driven by a strong transcriptional promoter, it takes time to accumulate sufficient opsin expression in brain cells to enable optogenetic stimulation. Thus, in the proposed experiments, it becomes necessary to wait two weeks after intracranial virus injection before
1810-36435A	Cvetanovic, Marija	Mice	EUTHANASIA METHOD	This will be used only for study of calcium signaling. Mice are decapitated with surgical scissors without any anesthetic, as anesthetic
1810-36435A	Cvetanovic, Marija	Mice	SOCIAL HOUSING	see protocol for details

1810-36429A	Meisel, Robert	Hamster	EUTHANASIA METHOD	The animals will simply be receiving an injection of a euthanasia solution. This method will only be used in experiment 2. Here, because we are measuring very labile molecular events (including phosphorylation) that require precise timing of sacrifice, sedatives or anesthesia would interfere with the scientific goals of the experiment. Only individuals trained in decapitation will sacrifice the animals. In addition the guillotine
1810-36429A	Meisel, Robert	Hamster	SOCIAL HOUSING	see protocol for details
1810-36420A	Bianco, Richard	Sheep (Biomedical)	MULTIPLE SURGERY	All of the procedures performed on one animal are directly related to evaluation of the device. Clinically, this pulmonary valve would be implanted in a child, and when that child grows, they would undergo a minimally invasive procedure to increase the diameter of the valve. The second procedure is a cut down to a vein and is minimally invasive. This procedure will be performed under sterile conditions and analgesia will be administered post operatively. (Pulmonary Valve Replacement) All of the procedures performed on one animal are directly related to evaluation of the device. Clinically, this pulmonary valve would be implanted in a child, and when that child grows, they would undergo a minimally invasive procedure to increase the diameter of the valve. The subsequent expansions are to determine if the valve can be expanded multiple times, as this is the performance expectation for this device for clinical patients. All of the procedures performed on one animal are directly related to

1810-36395A	Costalonga, Massimo	Mice	TAIL BIOPSY	The exception we request to the biopsy procedure is the use of isoflurane anesthesia for tail snips over 21 days. This would only be done in the rare occasion that a second biopsy sample is needed
1810-36395A	Costalonga, Massimo	Mice	EUTHANASIA METHOD	AIM#2: As instructed by the inspector during the 2015 review, 17d gestation fetuses must be decapitated before disposal. The oral candidiasis cortisone-induced mouse model we are studying may induce 25% weight loss at day 5 after inoculation of C. albicans. The experiment is only 5 days long and in mice that on day 4 are at 25% wight loss will be
1810-36394A	Harris, Reuben	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	If RAR veterinary staff require euthanasia of moribund mice, we will follow through in the allowed time.
1809-36374A	Larsen, Peter	Wild Rodents	EUTHANASIA DEATH/MORIBUND ENDPOINT	We are collecting museum voucher samples and tissues from wild rodents. These samples will allow for metagenomic sequencing to
1809-36366A	Portoghese, Philip	Mice	72 HOUR POST-OP ANALGESIA POLICY	Additionally, post-operative analgesic therapy is contraindicated since provision of analgesics would inhibit the neurochemical changes required to develop the hypersensitive states to be studied.
1809-36347A	Andrade, Rafael	Rabbit	SOCIAL HOUSING	see protocol for details
1809-36344A	Liao, Dezhi	Rat, Mice	EUTHANASIA METHOD	We will harvest brain tissues from neonatal rodents younger than 1 week. According to IACUC guidelines, it can be done by

1809-36341A	Provenzano, Paolo	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	For survival studies, and in particular preclinical drug trials, mice reaching the moribund state is considered an endpoint. This is applicable to mice with pancreas cancer. Animals are followed closely for signs and symptoms of advanced malignancy and are euthanized when they become moribund; it is our express aim not to let them progress to death for both humane and scientific reasons. Thus, we monitor the animals for general behavior and activity level; the development of severe cachexia, a cardinal manifestation of advanced pancreas cancer; and/or large palpable abdominal masses (> 2 cm). If these symptoms occur the mouse will be euthanized. It is further noteworthy that in our preclinical trials we carefully documents these symptoms in order to carefully identify the positive or negative effects of therapy on these hallmarks of pancreas cancer We note also that abdominal distension can develop and results from negative effects of therapy on these hallmarks of pancreas cancer. We note also that abdominal distension can develop and results from the accumulation of peritoneal ascites

1809-36341A	Provenzano, Paolo	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Avertin as opposed to an injection of Ketamine/Xylazine and an injection of Yohimbine makes Avertin our preferred choice. Additionally, ketamine/xylazine altered the course of pancreatic cancer as outlined in our protocol□ □ Preparation:□ Sterile filter with 0.2 micron filter.□ Store and use under sterile conditions.□ Store in the dark bottle or foil covered container.□ Store stock and working stock solutions at 4oC.□ Do not use if the solution becomes discolored or has a precipitate.□ Check pH before each use and use only when greater than pH 5.□

1808-36332A	Tolar, Jakub	Mice	EUTHANASIA METHOD	We are proposing to perform cervical dislocation without anesthesia due to the potential effects of anesthesia on the circulation and the induction of tissue injury. For example, we have consistently observed that lymph node, spleen, and bone marrow cell viability and function are adversely affected in situations in which cells are not rapidly obtained from the animal after elective sacrifice. We have noticed that new lab members who cannot rapidly harvest bone marrow and lymph nodes frequently have poor experimental results. Rapid acquisition of cells and tissues after circulation and oxygenation ceases is critical to preserve normal immune responses. The data are striking and illustrate that stem cells and lymphocytes are highly susceptible to apoptosis, corticosteriod-induced immune suppression as well as the well-known accumulation of nitric oxide and oxygen radicals that can occur with low circulation and oxygenation that will compromise our experiments, requiring more repetitions and hence more mice, reagents, space in the colony and resources. WHEN DONE

1808-36330A	Ebner, Timothy	Mice	MULTIPLE SURGERY	Based on our initial trials of administering the AAV opsin construct followed by the immediate implantation of the fiber optic, we noticed that we were not producing any expression of the opsin in the targeted region, but only along the shaft of the fiber optic. This was also confirmed in verbal communications with the Esther Krook-Magnuson lab. If the fiber optic is placed immediately after the delivery of the AAV, the AAV will concentrate around the fiber optic before it can be taken up by cells. Therefore, we are requesting to do an initial surgery to first inject the AAV opsin construct. This procedure is minimally invasive and typically only lasts an hour in length. The animal receives SR Buprenorphine for each surgical procedure, and in our experience, the mice handle each surgery separately extremely well and do not show signs of pain or discomfort. If any signs of pain or distress are seen following either procedure, we will euthanize the mouse. If an animal fails to gain or maintain their weight, develops an infection, or starts showing signs of pain/distress following recovery of the first
1808-36330A	Ebner, Timothy	Mice	SOCIAL HOUSING	see protocol for details
1808-36330A	Ebner, Timothy	Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details

1808-36330A	Ebner, Timothy	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Notes on use of non-pharmaceutical grade urethane: To our knowledge, there is no pharmaceutical grade urethane available. However, we believe the use of urethane is still justified in our anesthetized, non-survival surgical procedures, as alternative anesthetics have considerable negative effects on physiology of the cerebral and cerebellar cortices. For example, ketamine is well known to block NMDA receptors in the brain, which are key receptors in the neuronal circuitry that we are studying (Bengtsson & Jorntell, 2007). Barbiturates are also known to profoundly depress cerebellar circuitry (Sato, Y. et al., 1993). Additionally, isoflurane over time depresses cerebellar function (Loeb, A.L., et al., 1998), which is not ideal for our long, acute experiments. Therefore, urethane is the best available anesthetic agent for us to use to investigate cerebral and cerebellar function in our studies. Bengtsson, F. & Jorntell, H. Ketamine and xylazine depress sensory-evoked parallel fiber and climbing fiber responses. J Neurophysiol 2007, 98(3):1697-
1808-36294A	Gorr, Sven-Ulrik	Mice	SOCIAL HOUSING	see protocol for details

1808-36286A	Tolar, Jakub	Mice	EUTHANASIA METHOD	We are proposing to perform cervical dislocation without anesthesia due to the potential effects of anesthesia on the circulation and the induction of tissue injury. For example, we have consistently observed that lymph node, spleen, and bone marrow cell viability and function are adversely affected in situations in which cells are not rapidly obtained from the animal after elective sacrifice. We have noticed that new lab members who cannot rapidly harvest bone marrow and lymph nodes frequently have poor experimental results. Rapid acquisition of cells and tissues after circulation and oxygenation ceases is critical to preserve normal immune responses. The data are striking and illustrate that stem cells and lymphocytes are highly susceptible to apoptosis,corticosteriod-induced immune suppression as well as the well-known accumulation of nitric oxide and oxygen radicals that can occur with low circulation and oxygenation that will compromise our experiments, requiring more repetitions and hence more mice, reagents, space in the colony and resources. WHEN DONE
1808-36277A	Largaespada, David	Mice	MULTIPLE SURGERY	Amputation is performed on mice that previously received intra-osseous tumor (by surgical procedure). The mice develop primary tumors relatively quickly, but our experimental aim is to achieve metastasis. We believe that the longer the tumor is present the more likely metastasis will occur. We would perform the amputation when the mouse becomes

1808-36275A	Knauer, Whitney	Goat	BLOOD COLLECTION LIMIT	The aggressive sampling scheme is necessary to capture the extent and duration of stress (measured by cortisol) and pain (measured by PGE2) associated with disbudding. We need 1ml of serum for both measures, so a volume of 3ml of whole blood is necessary. This aggressive sampling method has been described (Alvarez et al, 2009; Hempstead et al., 2018) with no apparent ill effects for the kids. □ □ Kids will be monitored for pallor (pale oral mucous membranes) and lethargy throughout the sampling period. Kids will be fed a high plane
1808-36261A	Pang, Hongbo	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	see protocol for details
1808-36248A	Michaeli, Shalom	Rat	72 HOUR POST-OP ANALGESIA POLICY	Subjects with peripheral neuropathy cannot receive post-operative analgesics because these will inhibit the spinal neuroplasticity intended to

1808-36248A	Michaeli, Shalom	Rat	NON-PHARMACAUTICAL GRADE COMPOUNDS	Urethane is a widely used anesthetic in laboratory animal practice, especially in electrophysiologic studies (Maggi and Meli, 1986). Urethane has several advantages, including several possible administration routes, steady and long-lasting (6–12 h) surgical level of anesthesia, minimal effects on respiration and cardiovascular system, and muscle relaxation (Maggi and Meli, 1986, Hara and Harris, 2002). Although some thalamic and cortical suppression has been identified, several regions are only minimally modulated by urethane, and peripheral stimuli produce reflexes at the central nervous system level that modulate autonomic functions (Maggi and Meli, 1986). Nevertheless, urethane also has undesirable side effects. It causes hyperglycemia, and intraperitoneal injection induces necrosis in intra-abdominal organs (Maggi and Meli, 1986, Field and Lang, 1988). Urethane anesthesia is thus recommended to be terminal, which precludes follow-up studies (Field and Lang, 1988).□ □ Urethane has mild effects on multiple ion channels, a feature
1808-36242A	Klein, Amanda	Mice	72 HOUR POST-OP ANALGESIA POLICY	The neuropathic pain model, spinal nerve ligation, proposed herein will cause some pain. Using analgesic drugs may antagonize the pain hypersensitivity and spinal neuronal (i.e. central) sensitization that is developed after injury over time. Administration of analgesic drugs post surgery, however, would confound our behavioral
1807-36224A	Elmquist, William	Mice	BLOOD COLLECTION LIMIT	Blood collection will be performed post euthanasia. (Distributional Pharmacokinetics of anti-cancer
1807-36224A	Elmquist, William	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	In efficacy studies, the improvement in survival upon treatment with novel anti-cancer agents will be evaluated. In these studies, tumor-bearing mice with deviations from

1807-36205A	Vannucci, Fabio	Pig (Agricultural)	EUTHANASIA METHOD	Per the AVMA guidelines, barbiturates have "a rapid onset of action, and loss of consciousness induced by barbiturates results in minimal or transient pain associated with venipuncture." In the event that an animal
1807-36201A	Bianco, Richard	Sheep (Biomedical)	MULTIPLE SURGERY	This is a model development protocol. One of the primary difficulties in assessing transcatheter valves is the inability to anchor them in the annulus of a healthy animal. Other methods are used to mimic aortic stenosis e.g. external banding. This model most closely mimics the
1807-36197A	[redacted]	Mice, Rat, Dog, Cat, Rabbit, Guinea Pig, Chinchilla, Nonhuman Primate (Macaques), Pig (Biomedical), Sheep (Biomedical), Chicken, Turkey	SOCIAL HOUSING	

1807-36193A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	Prior to training an animal to control his eye position, a head post is implanted in an aseptic surgical procedure to permit monitoring of eye position (see Headpost Implantation procedure). The animals is then trained to perform the task while maintaining fixation on a small spot on a video display under head restraint, and with some tasks to make specific eye movements to visual targets. This fixation control is necessary to insure that portion of the retina on which the stimuli fall is not an uncontrolled variable. (see Behavioral Training procedure). □ □ Up to 12 months of training may be needed before an animal performs sufficiently well to allow us to collect neurophysiological data. When all training is complete, the animal undergoes another recovery surgery to implant an recording chamber.□ □ Implanting chambers in separate surgeries is scientifically justified because they have a limited useful lifetime. The multiple surgeries are needed for the scientific objectives of the experiments, and are related components of the research project.
1807-36168A	Klein, Amanda	Mice	72 HOUR POST-OP ANALGESIA POLICY	The neuropathic pain model, spinal nerve ligation, proposed herein will cause some pain. Using analgesic drugs may antagonize the pain hypersensitivity and spinal neuronal (i.e. central) sensitization that is developed after injury over time. Administration of analgesic drugs
1807-36152A	Niedernhofer, Laura	Mice	EUTHANASIA METHOD	Culling purposes only. Preformed only on pups < 3 days.
1807-36137A	Georgieff, Michael	Mice	EUTHANASIA METHOD	Decapitation without anesthesia or sedation will only be performed on postnatal day (P)0-P3 mice, for

1807-36119A	Pennell, Christopher	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	To determine if mice in our model experience the same toxicities as patients, we request that we are allowed to use 30% weight loss as a criterion for morbidity and euthanasia. If mice can spontaneously recover after losing 20% of their body weight, then our model would not be that great. We wouldn't know this if we had to euthanize them at the 20% weight loss level. However, we think it unlikely they could spontaneously
1807-36119A	Pennell, Christopher	Mice	EUTHANASIA METHOD	Cervical dislocation is rapid and apparently painless. I have over 30 years experience using this method of euthanasia. We propose to develop a new model for clinical side effects of CAR immunotherapy. These side effects are CRS and neurologic adverse effects. Patients rapidly lose weight and experience systemic organ failure due to a sudden and systemic cytokine release. If left untreated, these toxicities are often fatal.□ □ To determine if mice in our model experience the same toxicities, we request that we are allowed to use 30% weight loss as one criterion for euthanasia (please note this exemption was granted in previously approved protocols). If mice can spontaneously recover after losing 20% of their body weight, then our model would not be that great. We wouldn't know this if we had to euthanize them at the 20% weight loss level. However, we think it unlikely they could spontaneously recover after losing 30%. Since one of our goals is to reverse toxicity, we'd like to apply our proposed

1807-36110A	Gradilone, Sergio	Rat	MULTIPLE SURGERY	In order to test the efficiency of the virus to infect and express GFP on tumor tissue, we propose to use an orthotopic rat model injecting BDEneu cells. For this approach we need two surgeries, the first surgery will be the injection of the cells on the liver lobe and the second surgery will be the injection of the AAV virus on the portal vein or jugular vein. Anesthetics will be titrated carefully and mice monitored continuosly throughout monitoring
1807-36110A	Gradilone, Sergio	Rat	72 HOUR POST-OP ANALGESIA POLICY	For the jugular vein injection procedure we spoke with the veterinarian and he told us that giving carprofen before the surgery and the day after would be enough
1807-36103A	Subramanian, Subree	Mice	MULTIPLE SURGERY	The first surgery is for establishing the disease model. The secondary surgery is for treating the diseases.
1806-36081A	Forester, James	Other* (Non-USDA), Other* (Non-USDA), Other* (Non-USDA), Other* (Non-USDA), Other* (Non-USDA), Other* (Non-USDA), Other* (Non-USDA), Other* (Non-USDA), Bird (Other), Fish (Other), Fish (Other)	EUTHANASIA METHOD	Blunt force will render the animals unconscious, after which the animal will be euthanized via cervical dislocation. Blunt force will render the animals unconscious, after which the animal will be euthanized via cervical dislocation. Blunt force will render the animals unconscious, after which the animal will be euthanized via cervical dislocation. Blunt force will render the animals unconscious, after which the animal will be euthanized via cervical dislocation. Blunt force will render the animals unconscious, after which the animal will be euthanized via cervical
1806-36072A	Alejandro, Emilyn	Mice, Mice	SOCIAL HOUSING	see protocol for details
1806-36072A	Alejandro, Emilyn	Mice, Mice	EUTHANASIA METHOD	Only neonates (day 1) will be euthanized via decapitation.

1806-36049A	O-Uchi, Jin	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	There is no pharmaceutical grade avertin available. This animal line has high sensitivity to halogenated anesthetics (e.g. Isoflurane) to produce human malignant hyperthermia-like phenotype after exposure to these drugs (Chelu MG et al, FASEB J. 2006). In addition, in the prior studies, we have frequently experienced that this mouse lines has sensitivity to reduce cardiac function and hemodynamics during surgery (unpublished data). Only avertin among the drugs we tested did not change the basal cardiac function and hemodynamics compared to WT. Therefore, we will use avertin for all procedures we proposed in this animal protocol. 100% Tribromoethanol (avertin) stock solution will be prepared as follows. First, we will add non-pharmaceutical grade avertin (Sigma) to non-pharmaceutical grade tertiary amyl alcohol (Sigma) and completely dissolve it by heating and stirring. To use, we will dilute 100% stock to 2.5%, v/v, in diluent (0.8% NaCl, 1mM Tris (pH 7.4), 0.25mM EDTA, check the pH and will adjust to pH 7.4.) stirring
1806-36045A	Noll, Sally	Turkey, Chicken	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	As indicated the birds are at a minimum of 2.5 Kg at the time of initial 24 hr fast. Once in the cages, we don't weigh them any more as there is an increased risk of injury taking them in and out of the cage repeatedly. Also with handling, feathers, scale, dander will contaminate the excreta collected leading to increased variability in the chemical composition. (Assay procedure-Turkey) As indicated the birds are at a minimum of 2.5 Kg at the time of initial 24 hr fast. Once in the cages, we don't weigh them any more as
1806-36045A	Noll, Sally	Turkey, Chicken	SOCIAL HOUSING	see protocol for details

1806-36038A	Lin, Wensheng	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	EAE is a paralytic disease that affects predominantly mobility of the experimental animals. Transient Dehydration, fatigue and muscle waste are expected symptoms when mice reach a score of 3.0 (complete paralysis of hind limbs) and beyond. These mice will receive supplemental nutrition, fluids and care on a twice daily basis. Animals
1806-36038A	Lin, Wensheng	Mice	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Mice will be deeply anesthetized with intraperitoneal injections of Avertin (425 mg/kg) prior to transcardial perfusion. Depth of anesthesia will be confirmed via lack of toe pinch reflex. Euthanasia is
1806-36038A	Lin, Wensheng	Mice	EUTHANASIA METHOD	When properly used by skilled personnel with well-maintained equipment, cervical dislocation may result in less fear and anxiety and be more rapid, painless, humane, and practical than other forms of euthanasia. Younger than 14-day-old pups will be will be euthanized by decapitation with scissors. Decapitation results in less fear and anxiety and be more rapid, painless, humane, and practical than other forms of euthanasia. EAE is a paralytic disease that affects predominantly mobility of the experimental animals. Transient Dehydration, fatigue and muscle waste are expected symptoms when mice reach a score of 3.0 (complete

1806-36038A	Lin, Wensheng	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Avertin has been the standard anesthetic in much mouse transgenic work. Advantages of Avertin are that it produces short-term (15-20 minutes) surgical anesthesia with good muscle relaxation and moderate respiratory depression, and that the mouse received it will recover within 30-60 minutes. Usually, it takes less than 5 minutes to perform EAE immunization. Moreover, we have used Avertin for EAE experiments for over 10 years (Avertin was approved for EAE experiments in our previous protocols 1209A21055 and 1507-32810A). It is extremely important to use Avertin for our current and future EAE experiments, so that we make direct comparisons our previous, current, and future EAE work. Therefore, Avertin is selected due to its rapid induction of short-term anesthesia, quick recovery, low complication rate, and continuity of our EAE work. □ □ Avertin will be prepared according to the IACUC Guidelines. Briefly, ten grams of 2,2,2-Tribromoethanol will be suspended in 10 ml of tert-amyl alcohol and serves as the stock
1806-36033A	Garry, Daniel	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	DMD knockout model animals will have an end point of animal death without intervention in both the treated and untreated study groups. The aim of the study is to determine the length of increase in disease model animals with the treatment and thus the treated and untreated

1806-36033A	Garry, Daniel	Mice	EUTHANASIA METHOD	Cervical dislocation will be performed by technically competent staff to ensure quick and complete euthanasia. Decapitation will be used for euthanasia of mouse embryos and neonates up to day 10.□ □ Mouse neonates up to 10 days of age will be euthanized by methods according to NIH publication Guidelines for Euthanasia of Rodent Fetuses and Neonates (revisid 6/22/16, Website: https://oacu.oir.nih.gov/animal-research-advisory-committee-guidelines). Decapitation will be performed by new disposable razorblades, which will be disposed of at the end of the procedure, or replaced more frequently as needed. □ □ Excerpt from the NIH guideline:□ Mouse, Rat, and Hamster Neonates up to 10 days of age: Acceptable methods for euthanasia include: injection of chemical anesthetics (e.g., pentobarbital), decapitation or cervical dislocation. Additionally, these animals are sensitive to inhalant anesthetics; e.g., CO2, or
1806-36019A	Siegfried, Jill	Mice	72 HOUR POST-OP ANALGESIA POLICY	Our incisions are very small and seal right away with vetbond. Others who has performed this surgery did not needed 3 days of analgenics

1806-36018A	Ervasti, James	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	We have read the Avertin guidelines in USDA Policy #3, Pharmaceutical-Grade Compounds in Research. However, we strongly feel that our planned use of Avertin is justified for the following reasons. First, Avertin is the most widely used anesthetic in transgenic mouse research and is recommended by The Jackson Laboratory because it is easy to master administration, it is very fast acting and produces minimal obvious discomfort to the animal. In our experience with mouse anesthetics over the last 11 years at the University of Wisconsin and University of Minnesota, we have not experienced the significant post-procedural mortality noted in the
1806-36017A	Herrlinger, Sara	Cat, Dog	72 HOUR POST-OP ANALGESIA POLICY	Currently our shelter cats (non-feral) are receiving an IV dose of buprenorphine after induction then an oral dose of 0.1 mg/kg meloxicam after recovery and another 0.05 mg/kg dose of meloxicam to go home and administered 24 hours later. Unfortunately, there are no great take-home analgesics which are entirely safe to use in cats. NSAIDs are safe to use short-term but are not recommended to be used for multiple days in a row. Sublingual buprenorphine is a controlled substance and should not be dispensed to local rescue groups and shelters. Keeping these facts in mind, we consulted with a board-certified veterinary anesthesiologist and they recommended providing 2 doses of oral meloxicam for pain in cats; they did not recommend providing a 3rd dose. This exact protocol has been approved by IACUC for this teaching lab for multiple years and we have not had any issues with post operative pain in our cats. This pain protocol is also what is used at the Animal Humane Society (where most of our surgery patients are obtained from) and in many veterinary hospitals

1806-36017A	Herrlinger, Sara	Cat, Dog	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	The 3 day post-operative monitoring of patients will be performed by the rescue groups, foster parents, and local animal shelter staff. Each patient is discharged with detailed post-operative directions (see attachment labelled "detailed post operative care instructions") and caretakers are expected to review these documents and report any abnormalities to the U of MN faculty veterinarian via the emergency care phone line. Caretakers are expected to monitor each animal's activity level, mental attitude, elimination habits and food consumption and report any concerns. They are encouraged to check the incision daily and to report any redness, swelling, or discharge. They are also required to report any signs of pain or discomfort so additional pain medications can be prescribed. □ □ Last year, we added feral / community cat spay and neuter surgery to our teaching protocol. These cats are discharged to a designated "feral cat coordinator" who is employed by the Animal Humane Society or another rescue group. After discharge the following steps are put into place to ensure
1806-36007A	Blazar, Bruce	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Death is required to understand the effects of some of our experimental therapies on GVHD. In order to understand their effect, death must

1806-36007A	Blazar, Bruce	Mice	EUTHANASIA METHOD	Cervical dislocation. We are proposing to perform cervical dislocation without anesthesia due to the potential effects of anesthesia on the circulation and the induction of tissue injury. For example, we have consistently observed that lymph node, spleen, and bone marrow cell viability and function are adversely affected in □ situations in which cells are not rapidly obtained from the animal after elective sacrifice. We have noticed that new lab members who cannot rapidly harvest bone marrow and lymph nodes frequently have poor experimental results. Rapid acquisition of cells and tissues after circulation and oxygenation ceases is critical to preserve normal immune responses as measured in vitro by proliferation assays and in vivo. The data are striking and illustrate that stem cells and lymphocytes are highly susceptible to apoptosis, corticosteriod induced immune suppression as well as the well-known accumulation of nitric oxide and oxygen radicals that can occur with low circulation and oxygenation that will compromise our experiments, requiring more repetitions and hence more mice,
1806-36007A	Blazar, Bruce	Mice	SOCIAL HOUSING	see protocol for details
1806-35996A	Widge, Alik	Rat	MULTIPLE SURGERY	see protocol for details
1806-35996A	Widge, Alik	Rat	72 HOUR POST-OP ANALGESIA POLICY	The animal usually does not feel pain 24 hours post-surgery, but we will monitor the rat everyday for at least 72 hours post-surgery. Analgesics will be given if the rat is still feeling the pain either 48 or 72
1806-35996A	Widge, Alik	Rat	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	We need to weight animal everyday to monitor their weight changes. The weight will be an important indicator on whether we should increase or decrease the daily food distribution
1806-35996A	Widge, Alik	Rat	SOCIAL HOUSING	see protocol for details

1805-35968A	Noll, Sally	Turkey, Chicken	FOOD/FLUID RESTRICTION RECORDKEEPING	This section is not applicable, poultry not housed in RAR facilities (Turkey Study Diets) not applicable as the poutlry are not
1805-35962A	Dong, Zigang	Mice	TUMOR ENDPOINT CRITERIA	Due to the superficial nature of these melanoma tumors, the skin has a tendency to tighten and ulcerate at a very small size. In order to get sufficient data from our study and reduce the need to repeat, we would like to treat the ulceration with collasate ointment, instead of euthanizing the mouse before we can get sufficient data. We will treat
1805-35959A	Pieters, Maria	Pig (Agricultural)	EUTHANASIA METHOD	Personnel is trained to perform euthanasia (DVMs) directly in large
1805-35934A	Iaizzo, Paul	Pig (Biomedical)	NON-PHARMACAUTICAL GRADE COMPOUNDS	see protocol for details
1805-35927A	Malone, Erin	Horse, Cow (Biomedical), Goat, Sheep (Biomedical), Camelid (llamas &	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Standing sedation only. Clinical cases are not monitored to this level. Sedation is only used to the level needed to relax the animal, not to perform surgery
1805-35922A	Iaizzo, Paul	Pig (Biomedical)	NON-PHARMACAUTICAL GRADE COMPOUNDS	see protocol for details
1805-35921A	Meisel, Robert	Hamster	SOCIAL HOUSING	see protocol for details
1805-35921A	Meisel, Robert	Hamster	EUTHANASIA METHOD	The animals will simply be receiving an injection of a euthanasia solution. This method will only be used in Experiment 2. Here because we are measuring very labile molecular events that require precise timing of sacrifice, sedatives or anesthetics

1805-35914A	Khoruts, Alexander	Hamster	EUTHANASIA DEATH/MORIBUND ENDPOINT	C. difficile infection results in pseudomembranous enterocolitis in hamsters, which is typically a fatal condition. It is a rapid disease that generally peaks at 48 hours, and death/moribound state is the standard end-point in the literature. Of note, the human equivalent, which is responsible for ~ 30,000 deaths annually in the US, has 50% mortality with best standard therapy.
1805-35914A	Khoruts, Alexander	Hamster	SOCIAL HOUSING	see protocol for details
1805-35904A	Osborn Jr, John	Rat	MULTIPLE SURGERY	Uninephrectomy is required to study the effects of compounds on the left kidney, in isolation from any contralateral right kidney effects. Following uninephtrectomy the remaining left kidney undergoes hypertrophy. After 7-10 days hypertrophy is complete and a catheter can be placed into the outer medulla of the left kidney for compound administration. If the catheter was inserted during the same surgery as the uninephrectomy it's position would be displaced by the compensatory hypertrophy. (Uninephrectomy) Prior uninephrectomy is required to study the effects of compounds on the left kidney, in isolation from any contralateral right kidney effects. Following uninephtrectomy the remaining left kidney undergoes hypertrophy. After 7-10 days
1805-35904A	Osborn Jr, John	Rat	NON-PHARMACAUTICAL GRADE COMPOUNDS	Inactin is non pharmaceutical and will be prepared in a manner that makes it compatible for animal use. As such we will take into account sterility, pH, purity and osmolarity when preparing the Inactin. New solutions will be made up daily. (Acute RBF/GFR) Inactin is non pharmaceutical and will be prepared in a manner that makes it compatible for animal use. As such we will take into account

1805-35904A	Osborn Jr, John	Rat	ENVIRONMENTAL ENRICHMENT	see protocol for details
1805-35898A	Crooker, Brian	Cow (Agricultural)	EUTHANASIA METHOD	Anesthesia or sedation is generally not needed for iv administration of barbituates to dairy cattle. If the animal is not calm, gentle restraint
1805-35891A	Blazar, Bruce	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Sick mice cannot euthanized.We tried correlating histology to survival and surprisingly, did not find a correlation. It may be useful corollary data providing information as to specific tissue site destruction but it does not correlate to survival. Nor do data from in vitro assays (disparagingly referred to as 96-well
1805-35891A	Blazar, Bruce	Mice	SOCIAL HOUSING	see protocol for details
1805-35891A	Blazar, Bruce	Mice	EUTHANASIA METHOD	We use cervical dislocation without anesthesia due to the potential depressive effects on the circulation and induction of tissue injury. We have consistently observed that lymph node, spleen and bone marrow cell viability and function are adversely affected in situations in which cells are not rapidly obtained from the animal after euthanasia. Rapid acquisition of cells and tissues after circulation and oxygenation ceases is critical to preserve normal immune responses as measured in vitro by proliferation assays and in vivo by GVHD effects. The data are striking and illustrate that stem cells and lymphocytes are highly susceptible to apoptosis, corticosteroid-induced immune suppression as well as the well-known accumulation of nitric oxide and oxygen radicals that can occur with low circulation and poor oxygenation that will compromise our experiments. Carbon dioxide inhalation prior to cervical dislocation would adversely upset the acid-base balance resulting in acidosis which would be important on a cellular level for in vivo transfer of cells and in vitro assays. When done correctly, cervical dislocation

1805-35885A	Binstadt, Bryce	Mice	MULTIPLE SURGERY	see protocol for details
1805-35883A	Low, Walter	Mice	MULTIPLE SURGERY	This experiment requires additional surgery or surgeries to administer Zika virus or glioma cells infected with Zika virus. For the groups in Experiment 1B, these inoculations will be given on days 3, 7, and 14 following intracranial tumor implantation. Mice will be anesthetized during each surgical procedure. There are no sensory fibers within the brain to cause pain to the animal. Only the small incision will be noticed, and any minor pain or distress will be minimized with anesthetics and analgesics. This experiment requires additional surgery or surgeries to administer Zika virus or glioma cells infected with Zika virus. Rats will be anesthetized during each surgical procedure. There are no sensory fibers within the brain to cause pain to the animal. Only the small incision will be noticed, and any minor pain or distress will be minimized with anesthetics and analgesics. (Induction of brain tumor cell line (mice)) This experiment requires additional surgery or surgeries to administer
1805-35883A	Low, Walter	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	A state of moribundity may be reached to determine if treated animals experience tumor reduction and/or ablation, and whether they live longer than their untreated counterparts. Each animal will be euthanized as quickly as possible once this state is achieved. Animals which respond to treatment and
1805-35872A	Beilman, Gregory	Pig (Biomedical)	BLOOD COLLECTION LIMIT	It is necessary to collect this many bloods to adequately study the parameters outlined in our study. Animals will receive resuscitation fluids during the protocol as well as flushes after each blood draw. Animals will not be allowed to waken

1804-35863A	Yee, Douglas	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Avertin does not come as a certified pharmaceutical grade compound. We have historically had problems with other anesthetics killing the mice and have found this one to be quite reliable. Avertin is stored as a powder until right before surgery. Then it is weighed and brought up in solution. As soon as it is no longer
1804-35861A	Spencer, Sade	Rat	MULTIPLE SURGERY	Re-catheterization in case of catheter failure. Intervals are based on the animals catheter patentcy.□ Typically recatheterization surgeries only occur within the 3 weeks of the original surgery if at all. Each rat would undergo a maximum of 1 re-catheterization using the alternate jugular vein. The initial surgery utilizes the rat's right jugular vein and the re-catheterization surgery (if necessary) uses the left side. Animals□ are anesthetized for the procedure. Breathing rate and animals sensitivity to touch will be monitored to□ determine the state of anesthesia and overall well being of the animal. We will use a heating pad from the□ time of anesthesia till the animal is awake and moving around normally. (Intravenous catheter surgery) Multiple surgical procedures are usually performed in immediate succession (i.e. catheter surgery be
1804-35861A	Spencer, Sade	Rat	TAIL BIOPSY	Occasionally animals will have to be genotyped post-weaning if we require RAR staff to wean animals as opposed to laboratory staff or if we need to redo the biopsy due to accidental contamination. We will take every measure to minimize post-weaning tail biopsies as they can lead to additional stress and pain to the animals. In all cases we
1804-35861A	Spencer, Sade	Rat	SOCIAL HOUSING	see protocol for details

1804-35861A	Spencer, Sade	Rat	ENVIRONMENTAL ENRICHMENT	see protocol for details
1804-35859A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	~~Microdrive implantations are a~~ refinement we have implemented in which the electrodes are chronically implanted and sealed negating the need for chamber cleanings, and thus reducing the number of times that animal is required to leave its home cage. In all cases, revision surgeries may be necessary if one of the chambers is misaligned or becomes damaged during the course of the studies. These revision surgeries, however, are rare in our experience. (Chamber Implant)
1804-35856A	Li, Faqian	Mice	EUTHANASIA METHOD	Fetuses are neither sentient nor conscious prior to birth and thus incapable of actually perceiving pain.□ When fetuses (mouse>E15) are needed for study, euthanasia of individual fetuses induced by decapitation with surgical scissors is
1804-35852A	Lin, Gufa	Mice	MULTIPLE SURGERY	The major objectives of this study is to investigate whether limb/digit regeneration can be enhanced by cell transplantations, with or without further application of growth factors. We have shown that the cell transplants did not survive well if cells were applied at the same time when the digit was amputated. The best time for cell transplantation in the mouse digit stumps is around 2 weeks after amputation. This has also been reported recently by Dr. Ken Muneoka's groups, published in

1804-35852A	Lin, Gufa	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Avertin is used in this study, in addition to using isoflurane, as an anesthetic methods, to accommodate the imaging process, especially the fluorescence imaging under directing microscope, when proper isoflurane set up is difficult to set up to allow efficient imaging of the animals. □ Careful observation of the experimented mice in our previous work has indicated that there is no complications of ileitis, peritonitis or muscle necrosis. No signs of these conditions have been indicated in our post-mortem examination of the animal body and tissues collected. □
1804-35844A	Bischof, John	Fish (Zebra fish)	SANITATION FREQUENCY	Petri dishes are replaced every day and not used again. Tanks are replaced and cleaned at sign of
1804-35833A	Noll, Sally	Turkey	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	Not applicable. (Diets for Objective 2 growth study)
1804-35833A	Noll, Sally	Turkey	SOCIAL HOUSING	see protocol for details
1804-35833A	Noll, Sally	Turkey	FOOD/FLUID RESTRICTION RECORDKEEPING	Not applicable (Diets for Objective 2 growth study)
1804-35833A	Noll, Sally	Turkey	ENVIRONMENTAL ENRICHMENT	see protocol for details
1804-35829A	Noll, Sally	Turkey	SOCIAL HOUSING	see protocol for details
1804-35829A	Noll, Sally	Turkey	EUTHANASIA METHOD	Producers do not have or use sedation on their farms. we will only use cervical dislocation for the
1804-35828A	Aliota, Matthew	Mice	SOCIAL HOUSING	see protocol for details
1804-35825A	Noll, Sally	Turkey	ENVIRONMENTAL ENRICHMENT	see protocol for details
1804-35825A	Noll, Sally	Turkey	SOCIAL HOUSING	see protocol for details

1804-35815A	Blazar, Bruce	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	The exception for death as an endpoint will be pre-determined endpoint for the experiment, typically 100 days post transplant. As stated, control transplanted animals (BM only) are not expected to show signs of GvHD, and as such will typically survive for the term of the experiment. Additionally, if all relevant experimental groups have succumbed to GvHD by, for example, day 60 it would not be
1804-35815A	Blazar, Bruce	Mice	EUTHANASIA METHOD	We use cervical dislocation without anesthesia due to the potential depressive effects on the circulation and induction of tissue injury. We have consistently observed that lymph node, spleen and bone marrow cell viability and function are adversely affected in situations in which cells are not rapidly obtained from the animal after euthanasia. Rapid acquisition of cells and tissues after circulation and oxygenation ceases is critical to preserve normal immune responses as measured in vitro by proliferation assays and in vivo by GVHD effects. The data are striking and illustrate that stem cells and lymphocytes are highly susceptible to apoptosis, corticosteroid-induced immune suppression as well as the well-known accumulation of nitric oxide and oxygen radicals that can occur with low circulation and poor oxygenation that will compromise our experiments. Carbon dioxide inhalation prior to cervical dislocation would adversely upset the acid-base balance resulting in acidosis which would be important on a cellular level for in vivo transfer of cells and in vitro assays. Other inhaled anesthetics such as
1804-35808A	Klein, Amanda	Mice	72 HOUR POST-OP ANALGESIA POLICY	The neuropathic pain model (SNL) proposed herein will cause some pain. Administration of analgesic drugs, however, would confound our electrophysiological experiments in which we like to determine the effects of KATP channel modulators

1804-35802A	Klein, Amanda	Mice	72 HOUR POST-OP ANALGESIA POLICY	The neuropathic pain model, spinal nerve ligation, proposed herein will cause some pain. Using analgesic drugs may antagonize the pain hypersensitivity seen in primary afferent fibers and spinal neuronal (i.e. central) sensitization that is developed after injury over time. Administration of analgesic drugs post surgery, however, would confound our experiments in which
1804-35801A	Klein, Amanda	Mice	72 HOUR POST-OP ANALGESIA POLICY	The neuropathic pain model, spinal nerve ligation, proposed herein will cause some pain. Using analgesic drugs may antagonize the pain hypersensitivity and spinal neuronal (i.e. central) sensitization that is developed after injury over time. Administration of analgesic drugs post surgery, however, would confound our behavioral
1804-35785A	Tischler, Anna	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	We will perform experiments with small numbers of immune-deficient NOS2-/- and Irgm1-/- mice to measure virulence of M. tuberculosis mutant strains by monitoring survival of animals. We have also categorized all NOS2-/- and Irgm1-/- animals that will be used for the 6 week time points as Pain Class C, since this end point is close to the expected time of onset of disease symptoms (7 weeks for Irgm1-/- mice, 9 weeks for NOS2-/- mice), so these mice may experience some overt signs of
1803-35768A	Ji, Yinduo	Mice, Chicken, Turkey	EUTHANASIA DEATH/MORIBUND ENDPOINT	In project 4, for mouse sepsis protection model, we expect the control infected mice without treatment will die within 48 hours after infection. This protection model is a gold standard approach for validation of the efficacy of novel antibacterial agents (Ling et al. 2015 Nature 517:455). The mice will suffer from infections including pain and distress; however, we will monitor the mice every two hours
1803-35743A	Gordon-Evans, Wanda	Dog, Cat	EUTHANASIA METHOD	unlikely needed if owner has decided to euthanize

1803-35739A	Dong, Zigang	Mice	TUMOR ENDPOINT CRITERIA	In order to "reduce and refine" these studies, we would like to keep animals on study that have non-cavitated ulcerations <1cm2. The animals will be treated with collasate ointment and monitored three times weekly by lab staff. Certain cell lines have a tendency to ulcerate the skin before the tumor is an adequate size, ergo if we treat the minor ulcerations we can keep the
1803-35735A	Sachs, Zohar	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Mice will be euthanized on the same day they become moribund. Mice are allowed to reach moribund state because in order for our experiments to produce good results, AML should be as prominent in the mouse as possible. Often, this state co-occurs as moribundity.
1803-35725A	Richard, Jocelyn	Rat	SOCIAL HOUSING	see protocol for details
1803-35719A	Wong, Henry	Mice	72 HOUR POST-OP ANALGESIA POLICY	Additionally, post-operative analgesic therapy is contraindicated since provision of analgesics would inhibit the neurochemical changes required to develop the hypersensitive states to be studied.

1803-35712A	Yamamoto, Masato	Mice, Hamster	TUMOR ENDPOINT CRITERIA	When treatment works, some times ulceration is observed on the treated tumor as a result of tumor necrosis. We will observe the small ulceration up to 7 days unless continuous bleeding or infection is observed or reaching other euthanization criteria. We will give ketoprofen 5mg/kg SC q24h when necessary. Pain level C. (EXP 1. intratumoral injection of adenovirus (head-neck sub-cu tumor, mice)) When treatment works, some times ulceration is observed on the treated tumor as a result of tumor necrosis. We will observe the small ulceration up to 7 days unless continuous bleeding or infection is observed or reaching other euthanization criteria. We will give ketoprofen 5mg/kg SC q24h when necessary. Pain level C. (EXP 3'. combination therapy (sub-cu, it, panc, colon, headneck, mice)') Oncolytic adenoviruses occationally induce tumor ulceration when anti-tumor effect is strong. Usually, ulceration is seen before the tumor disappears. This is a part of therapeutic effect and the ulceration is self limiting. We want to observe ulcerated tumor up to 7 days unless
1803-35699A	Martin, Cindy	Pig (Biomedical), Pig (Biomedical)	MULTIPLE SURGERY	The piglet would undergo a septectomy, making the left and right atrial chambers a single chamber, which may create a hypoxic state for the piglet. We also want to band the pulmonary artery (PA) to increase the pressure on the right ventricle (RV). Our rationale is that the piglet would have time to compensate for these smaller, but
1803-35671A	Greising, Sarah	Mice	PHYSICAL RESTRAINT	This procedure is a moderate restrain. As such the animals are still able to move about the small area, but is it merely restricted from

1803-35667A	Davydova, Julia	Mice, Hamster	TUMOR ENDPOINT CRITERIA	As we stated above, along with the tumor lysis caused by hypoxia, tumor ulceration might be observed in animals receiving subcutaneous tumor cells. Tumor necrosis could be also an indicator of the successful therapeutic effect of the suggested treatment. In some cases, tumor necrosis leads to the ulceration of the tumor. Usually, this is the phenomenon observed in the process of tumor suppressive effect. □ □ We would like to observe the rodents with ulcers without antibiotics or analgesia in order to avoid possible effect of those drugs to the tumor response. Thus, pain level C is requested in order to observe the ulcerated tumor without antibiotics or analgesia. □ □ Animals will be monitored as their tumor grows for assessment of tumor size and overall animal condition every second day and/or as frequently as is required by the area veterinarian after a treatment plan is discussed. This monitoring will include weekends and holidays. □ □
1802-35633A	Klein, Amanda	Mice	72 HOUR POST-OP ANALGESIA POLICY	The neuropathic pain model (SNL) proposed herein will cause some pain. Administration of analgesic drugs, however, would confound our electrophysiological experiments in which we like to determine the effects of KATP channel modulators
1802-35613A	Olin, Michael	Mice	MULTIPLE SURGERY	Pumps will be implanted 3-5□ days post tumor inoculation.□ This allows us the time to□ image mice to ensure tumor□ growth. (Subcutaneous Alzet pump implantation) Tumors need to be established prior
1802-35613A	Olin, Michael	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Experiments need to determine moribundity to monitor treatments

1802-35603A	Pennell, Christopher	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	To determine if mice in our model experience the same toxicities as patients, we request that we are allowed to use 30% weight loss as a criterion for morbidity and euthanasia. If mice can spontaneously recover after losing 20% of their body weight, then our model would not be that great. We wouldn't know this if we had to euthanize them at the 20% weight loss level. However, we think it unlikely they could spontaneously
1802-35603A	Pennell, Christopher	Mice	EUTHANASIA METHOD	Cervical dislocation is rapid and apparently painless. I have over 30 years experience using this method of euthanasia. We propose to develop a new model for clinical side effects of CAR immunotherapy. These side effects are CRS and neurologic adverse effects. Patients rapidly lose weight and experience systemic organ failure due to a sudden and systemic cytokine release. If left untreated, these toxicities are often fatal. □ □ To determine if mice in our model experience the same toxicities, we request that we are allowed to use 30% weight loss as one criterion for euthanasia. If mice can spontaneously recover after losing 20% of their body weight, then our model would not be that great. We wouldn't know this if we had to euthanize them at the 20% weight loss level. However, we think it unlikely they could spontaneously recover after losing 30%. Since one of our goals is to reverse toxicity, we'd like to apply our proposed treatment at a time when the mouse could not otherwise recover. □

1802-35597A	Chen, Clark	Mice	MULTIPLE SURGERY	For this experimental procedure, it is essential that tumor implantation be performed in the manner that has been established, that is with an intact cranium during the injection process. A subsequent period after tumor implantation with the intact cranium must be provided to allow for adequate establishment of the tumor cells to grow. Therefore, the cranioplasty procedure can not be performed at the time of tumor cell implantation. The tumor cell implantation surgery is minimally invasive and animals recover quickly and do quite well following this procedure. Furthermore, pain and distress post-operatively associated with multiple procedures will be mitigated appropriately as outlined in the individual procedure protocols. (Cranioplasty) For this experimental procedure, it is essential that tumor implantation be performed in the manner that has been established, that is with an intact cranium (or artificial bone implant) during the injection process. A subsequent period after tumor implantation with the intact cranium (or artificial bone implant) must be provided to allow for
1802-35597A	Chen, Clark	Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details

1802-35597A	Chen, Clark	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	To our knowledge, there is no pharmaceutical grade urethane available. However, we believe the use of urethane is still justified in our anesthetized, non-survival surgical procedures, as alternative anesthetics have considerable negative effects on physiology of the cerebral and cerebellar cortices. For example, ketamine is well known to block NMDA receptors in the brain, which are key receptors in the neuronal circuitry that we are studying (Bengtsson & Jorntell, 2007). Barbiturates are also known to profoundly depress cerebellar circuitry (Sato, Y. et al., 1993). Additionally, isoflurane over time depresses cerebellar function (Loeb, A.L., et al., 1998), which is not ideal for our long, acute experiments. Therefore, urethane is the best available anesthetic agent for us to use to investigate cerebral and cerebellar function in our studies. The procedure will also be carried out in 373 ME. Bengtsson, F. & Jorntell, H. Ketamine and xylazine depress sensory-evoked parallel fiber and climbing fiber responses. J Neurophysiol 2007, 98(3):1697-705.
1802-35597A	Chen, Clark	Mice	SOCIAL HOUSING	see protocol for details
1802-35591A	Czyzyk, Jan	Mice	BLOOD COLLECTION LIMIT	This procedure will be performed in mice with diabetes to measure effects of anti-diabetic therapy. Random checking will involve weekly measurements. For glucose tolerance test mice will be bled at 0, 30, 60, 90 and 120 minutes after glucose intake. Each bleed is 5 mcroliters only. This is standard GTT assay, which allows for
1802-35558A	Bereiter, David	Rat	MULTIPLE SURGERY	A single microinjection of siRNA is made to block transcription in CFA-treated rats. The effectiveness of siRNA lasts for only a few days and cannot be given at the time CFA

1802-35558A	Bereiter, David	Rat	72 HOUR POST-OP ANALGESIA POLICY	We have received previous permission (7.22.13) from IACUC that a single dose of ketoprofen is sufficient for the surgeries we propose. (Intra-cerebral drug administration) This is a single injection and not a
1802-35558A	Bereiter, David	Rat	NON-PHARMACAUTICAL GRADE COMPOUNDS	Exorbitant cost increases effectively makes pharmaceutical grade formulations unavailable. Pharmaceutical grade formulations do not exist (Dorsal brainstem surface exposure (electrophysiology, microdialysis))
1802-35557A	Bereiter, David	Rat	MULTIPLE SURGERY	Exorbital gland removal and chronic intra-CNS cannula implantation can be performed concurrently. (Exorbital Gland removal) Exorbital gland removal and intra-CNS cannula placement will be performed concurrently. This may not qualify as multiple survival surgeries as there is no inter-procedure interval. Exorbital glands are removed on day 0, but siRNA cannot be given
1802-35557A	Bereiter, David	Rat	72 HOUR POST-OP ANALGESIA POLICY	We have received previous permission (7.22.13) from IACUC that a single dose of ketoprofen is sufficient for the minor surgeries we propose. We will change the protocol to use carprofen instead. We had received permission (7.22.13) from IACUC to use ketoprofen (2.5mg/kg, ip) but will change to carprofen (5 mg/kg, ip). (Chronic intra-cerebral guide cannula placement for drug administration)

1802-35557A	Bereiter, David	Rat	NON-PHARMACAUTICAL GRADE COMPOUNDS	Exorbitant cost increases effectively makes pharmaceutical grade formulations unavailable. (Ultraviolet light irradiation) Recent exorbitant cost increases effectively makes pharmaceutical grade formulations unavailable. (Chronic intra-cerebral guide cannula placement for drug administration) Pharmaceutical grade formulations do not exist. Barbiturates are not
1802-35545A	Lee, Anna	Mice	SOCIAL HOUSING	see protocol for details
1802-35545A	Lee, Anna	Mice	EUTHANASIA METHOD	Decapitation will be used for P0 or E15 mice using sharp scissors. The addition of sedation to these animals can interfere with the success of
1801-35539A	Chen, Xiaoli	Mice	EUTHANASIA METHOD	Our technical person has been working on mice for more than 8 years and has a high degree of mouse handling technical proficiency. In addition, we will
1801-35539A	Chen, Xiaoli	Mice	SOCIAL HOUSING	see protocol for details
1801-35505A	Ashe, Karen	Mice, Rabbit	EUTHANASIA METHOD	Embryos (~E14-E15)) and Neonates (P1-P4) will be decapitated without anesthesia. Rapid decapitation is the preferred method to sacrifice pups of this age since it is the most rapid method, does not introduce adverse substances or gases that would affect sensitive neonatal neurons, and avoids any discomfort
1801-35448A	Pennell, Christopher	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	We are testing a novel immunotherapy that may permit animals that appear sick (e.g. due to immune-mediated inflammation) to recover and become tumor-free.
1801-35448A	Pennell, Christopher	Mice	EUTHANASIA METHOD	Cervical dislocation is rapid and apparently painless. I have over 30 years experience using this method

1712-35414A	Kim, Do-Hyung	Mice, Mice	EUTHANASIA METHOD	Our research requires euthanization by cervical dislocation without anesthsia. Anesthesia and carbon dioxide asphyxiation lead to an increase in catecholamine levels, which in turn stimulate lipolysis in adipose and glycogenolysis in liver. These alterations in lipolysis and blood glucose interfere with the analysis of insulin sensitivity. Immediately following euthanization mice are bled through the orbital plexus. Anesthetics are known to increase catecholamine release which will interfere with our experiments. Blood collection will happen right after cervical dislocation.
1712-35414A	Kim, Do-Hyung	Mice, Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	non pharmaceutical-grade urethane is used as an anesthesia in our non-survival surgeries. Urethane comes in crystal form stored in secondary containment at room temperature. To prepare urethane from solid crystal, in a chemical fume hood, 0.9g urethane is diluted in 5mL of saline and filtered using 0.22 micron Millex GP filter. Urethane in liquid form is stored at room temperature. Urethane is the best and only option for this procedure because results will be comparable to previous research. (DOI:10.1523/JNEUROSCI.4801-06.2007 , DOI: 10.1073/pnas.1520759113)) (Terminal Epilepsy Analysis/electrophysiology) non pharmaceutical-grade urethane is used as an anesthesia in our non-survival surgeries. Urethane comes in crystal form stored in secondary containment at room temperature. To prepare urethane from solid crystal, in a chemical fume hood, 0.9g urethane is diluted in 5mL of

1712-35413A	Mand, Sandy	Fish (Other), Amphibian (Other), Reptile (Other)	SANITATION FREQUENCY	We use either under-gravel filters where the sediment waste on the gravel is siphoned out monthly or above-tank charcoal filter systems where the charcoal cartridges are changed based on manufacturer's recommendations. We change the bedding material/sand every month or two
1712-35413A	Mand, Sandy	Fish (Other), Amphibian (Other), Reptile (Other)	SOCIAL HOUSING	We have a male leopard gecko. Male geckos fight when housed together and we would prefer not to breed geckos.
1712-35406A	Bernlohr, David	Mice	EUTHANASIA METHOD	Altered lipolytic activity and metabolites have been demonstrated in tissues and blood after anesthesia and sedation. This euthanasia method will be used when determined to be necessary by
1712-35400A	Noll, Sally	Turkey, Turkey	EUTHANASIA METHOD	Cervical dislocation of young poultry is necessary because of the extremely long time needed to euthanize poultry with CO2 especially up to one week of age after hatch. They are resistant to
1712-35389A	Nakagawa, Yasushi	Mice	72 HOUR POST-OP ANALGESIA POLICY	This procedure only involves puncture of one point of the skin and skull and is thus minimally invasive. I have consulted Dr. Nate Koewler to confirm that we do not need
1712-35389A	Nakagawa, Yasushi	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	There are no pharmaceutical-grade compound available. (In utero electroporation) No pharmaceutical-grade

1712-35371A	Belcher, John	Mice, Mice	72 HOUR POST-OP ANALGESIA POLICY	The major endpoint for our research on sickle cell disease (SCD) is microvascular stasis. We have published numerous papers demonstrating that pro-inflammatory compounds increase stasis and anti-inflammatory compounds inhibit stasis in our SCD mouse models. Thus the interventions that we evaluate for treating SCD are all anti-inflammatory drugs. Use of anti-inflammatory drugs post-surgery will interfere with our measurement of microvascular stasis in our dorsal skin-fold chamber model. Buprenorphine has anti-inflammatory activity (Volker D, Bate M, Gentle R, Garg M. Oral buprenorphine is anti-inflammatory and modulates the pathogenesis of streptococcal cell wall polymer-induced arthritis in the Lew/SSN rat. Lab Anim. 2000 Oct;34(4):423-9). Unfortunately all of the analgesic
1712-35371A	Belcher, John	Mice, Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	The following is our scientific justification for the use of non-pharm grade chemicals. Urethane is widely used as an anesthetic for animal studies because of its minimal effects on cardiovascular and respiratory systems and maintenance of spinal reflexes. Alpha-chloralose is an anesthetic characterized by its ability to maintain animals in physiological conditions though immobilized and anesthetized. In addition, alpha-chloralose induces a loss of consciousness with little influence on either pain response or

1711-35358A	Thomas, Mark	Rat	MULTIPLE SURGERY	Animals will receive virus infusion and optical fiber implantation in separate surgeries. This is experimentally necessary because it takes several weeks for AAV genetic payloads to express. For the animals' well being and to maximize experimental success, we minimize the time that it carries fiber implants. Pain and distress will be monitored identically for each individual procedure, and animals will receive the same postoperative care, monitoring, and pain management. (Virus Vector Infusion (Rats, Survival)) A subset of animals will receive virus infusion and optical fiber implantation in separate surgeries. This is experimentally necessary because it takes several weeks for AAV genetic payloads to express. For the animals' well being and to maximize experimental success, we
1711-35358A	Thomas, Mark	Rat	SOCIAL HOUSING	see protocol for details
1711-35353A	Waye, Heather	Reptile (Other), Reptile (Other), Amphibian (Other), Frog (Other)	ENVIRONMENTAL ENRICHMENT	see protocol for details
1711-35316A	Mereddy, Venkatram	Mice	SOCIAL HOUSING	see protocol for details
1711-35311A	Vulchanova, Lucy	Mice	72 HOUR POST-OP ANALGESIA POLICY	Post-operative analgesic therapy is contraindicated because the objective of the procedure is to determine whether the experimental treatment causes hypersensitivity. Provision of analgesics would inhibit the neurochemical changes required
1711-35286A	Garry, Mary	Mice	EUTHANASIA METHOD	Cervical dislocation will be performed by technically competent staff to ensure quick and complete euthanasia. Decapitation will be used for

1710-35273A	Banik, Ratan	Rat	72 HOUR POST-OP ANALGESIA POLICY	We request not to give analgesics because we need for hyperalgesia to fully develop and analgesics may interfere with this process. Analgesic will be used if animals show excessive pain like behaviors (eg. vocalization, restlessness etc.). We and others lab extensively used this model. Based on our experience and available data, animals tolerate well this surgical procedure and do not show excessive pain behaviors. (Plantar skin+muscle incision) We request not to give analgesics because we need for hyperalgesia to fully develop and analgesics may interfere with this process. Capsaicin and methylene blue may provide analgesia in experimental animals. □ Analgesic will be used if animals show excessive pain like behaviors
1710-35218A	Crawford, Peter	Mice	72 HOUR POST-OP ANALGESIA POLICY	1. An extensive history of this surgery in mice (since 1999) via the NIH Mouse Metabolic Phenotyping□ Consortium has shown that more that 24 hours of analgesics is not necessary for the well being of the□ mouse. The mice do not, except in rare cases, exhibit loss of weight, piloerection, unkempt coat,□ hunched posture. If this occurs additional analgesic will be provided.□ 2. The studies within this protocol are aimed at assessing metabolism. Keeping the use of□ analgesics to a minimum is to avoid metabolic alterations not intended by the experimental design is□ imperative.□ *Please note that we would like to
1710-35218A	Crawford, Peter	Mice	SOCIAL HOUSING	see protocol for details

1710-35218A	Crawford, Peter	Mice	EUTHANASIA METHOD	A subset of adult mice animals (approximately 40%) will be euthanized by cervical dislocation. This method is selected because does not chemically contaminate tissue (including hypoxia and acidosis), which is critical for metabolic studies involving high resolution chemical profiling of extracts derived from the tissues (e.g., LC/MS metabolomics and magnetic resonance spectroscopy). Moreover, cervical dislocation induces rapid loss of consciousness, and is rapidly accomplished. As stated on p. 49 of AVMA Guidelines for the Euthanasia of Animals: 2013 Edition, '...cervical dislocation is acceptable with conditions for mice.... Personnel
1708-35078A	Li, Yuzhi	Pig (Agricultural)	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	Diets are not restricted. (Supplementation of Camelina Press-cake in pig diets)
1708-35069A	Kara, Prakash	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	A pharmaceutical grade is not available. As detailed in the SOP, urethane is prepared in a fume hood with PPE. After weighing the powder, e.g., 4 g, it is placed in a 50 mL Falcon centrifuge tube and distilled water is added for a total volume of 40 mL. The tube is clearly
1708-35068A	Smith, Gordon	Other* (USDA)	MULTIPLE SURGERY	see protocol for details
1708-35068A	Smith, Gordon	Other* (USDA)	72 HOUR POST-OP ANALGESIA POLICY	see protocol for details
1708-35068A	Smith, Gordon	Other* (USDA)	NON-PHARMACAUTICAL GRADE COMPOUNDS	see protocol for details

1708-35065A	Orr, Harry	Mice	MULTIPLE SURGERY	8 Weeks in between□ Bolus injection of ASO has been shown to result in more uniform delivery to all regions of the mouse brain than slower release pump delivery, however ASOs degrade over time so multiple bolus injections may be necessary to achieve full therapeutic potential. Our mice recover quickly from this short survival surgery and any additional surgeries will take place an absolute minimum of 4 weeks apart. In a currently ongoing clinical trial for ASO therapy in HD, patients receive intrathecal injection every 3 months. ASOs used in that trial are similar in chemical composition and mechanism of action to the ASOs used in our translational studies.□ □ SCA 3 ASO injection and M.R.S. Biomarker project□ 12 Weeks in between□ This mouse project has 4 total survival surgeries done to each mouse. One is conducted at the University of Michigan Ann Arbor, and then 3 more of the surgeries will be performed here at the University of MN. Due to the nature of the disease in these mice, the
1708-35065A	Orr, Harry	Mice	72 HOUR POST-OP ANALGESIA POLICY	This is a follow up procedure for the removal of stitches, and is noninvasive. (Stitch Removal)
1708-35065A	Orr, Harry	Mice	EUTHANASIA METHOD	Neonates up to P8 are euthanized by decapitation with surgical scissors as they do not have mature nociceptors and are resistant to hypoxia. P10 through P17 are
1708-35065A	Orr, Harry	Mice	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Further monitoring of a given mouse is not necessary as the procedure is terminal before 15 minutes pass. (Non-survival perfusion) This is a follow up procedure for the
1708-35056A	Gallaher, Daniel	Rat	SOCIAL HOUSING	see protocol for details

1708-35052A	LeBeau, Aaron	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	It is highly possible that the treatments administered to the animals could result in adverse health effect such as drug-related
1708-35046A	Kyba, Michael	Mice, Mice	MULTIPLE SURGERY	In order to achieve successful engraftment of muscle stem and progenitor cells the muscle has to undergo an injury two days before transplantation to induce an essential injury response in the tissue. Cryo-injury or muscle injection injury will be performed as described in the previous section, pain and distress in the animals will be monitored for 3 days post-procedure. Because the effects of analgesic compounds on muscle regeneration are unknown, and
1708-35046A	Kyba, Michael	Mice, Mice	72 HOUR POST-OP ANALGESIA POLICY	Because the effects of analgesic compounds on muscle regeneration are unknown, and because we want to examine the role of inflammatory cells in skeletal muscle damage/regeneration, we cannot use analgesics for this procedure. (Muscle injury by injection) Because the effects of analgesic compounds on muscle regeneration are unknown, and because we want to examine the role of inflammatory
1708-35046A	Kyba, Michael	Mice, Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Our objective is not to have any moribund animals, but on occasion, due to unforseen effects of particular treatments, death is possible, and we would euthanize
1708-35046A	Kyba, Michael	Mice, Mice	EUTHANASIA METHOD	Embryos 15 days of gestation or greater will be decapitated.
1708-35046A	Kyba, Michael	Mice, Mice	SOCIAL HOUSING	see protocol for details

1708-35044A	Liang, Yuying	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	For arenavirus (PICV and LCMV)-infected mice, we will use death as endpoints, which is the established practice for LCMV-mouse model ((von Herrath and Whitton. Animal models using lymphocytic choriomeningitis virus. Curr Protoc Immunol. 2001. Chapter 19: Unit 19). After LCMV infection intracranially, mice will begin to show signs of morbidity (ruffled fur, hunched posture, reduced mobility) around day 6 to 7 post-challenge, and will succumb rapidly thereafter. Death may be delayed in certain genetically modified strains and/or
1708-35036A	Pang, Hongbo	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	We have used avertin routinely in our previous studies (Pang HB et al, 2014). It is easier to store and use in the lab. Avertin will be prepared and stored using these guidelines: 1.Sterile filter with 0.2 micron filter 2.Store and use under sterile conditions 3.Store in the dark bottle or foil covered container 4.Store stock and working stock solutions at 4°C 5.Do not use if the solution becomes discolored or has a precipitate 6.Check pH before each use and use only when greater than pH 5
1708-35036A	Pang, Hongbo	Mice	SOCIAL HOUSING	see protocol for details

1708-35024A	Morris, Rebecca	Mice	MULTIPLE SURGERY	Blood chimerism occurs at 10 to 14 days and we will be studying mammary tumor progression at different time points (up to 13 months). Keeping the mice joined together for the duration of the study, after blood chimerism has occurred, would put undue stress on the mice. Therefore, it is necessary for the mice to undergo a second survival surgery, 2 to 4 weeks after the initial surgery, to separate the joined mice. After the joined mice are separated, they will recover for 1 to 2 weeks and cohabitate together for the duration of their different time points (up to 13 months). At which point, they will be euthanized for sample collection. (Parabiosis) Blood chimerism occurs at 10 to 14 days and we will be studying mammary tumor progression at different time points (up to 13 months). Keeping the mice joined together for the duration of the study, after blood chimerism has occurred, would put undue stress on
1708-35014A	Herzberg, Mark	Mice	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	No adverse affects are expected with the addition of antibiotics which are known to be well tolerated. (Antibiotic Feeding) No adverse impact on animal

1708-35013A	Panyam, Jayanth	Mice	TUMOR ENDPOINT CRITERIA	In our studies, we find that tumor bearing animals may develop involutions and ulcerations of the tumor as part of successful experimental treatment. Thus, it is important to follow these animals to document successful therapy. Animals with involuted/ulcerated tumors will be treated with topical collasate at least every other day until resolved. This protects the compromised tissue from infection or trauma, prevents the involutions from progressing, and in some instances allows the involutions to heal. Allowing these animals to remain on study prevents projects from having to be repeated on additional animals. Laboratory personnel will provide treatments in consultation with the veterinary staff. (Subcutaneous tumor induction) In our studies, we find that tumor bearing animals may develop involutions and ulcerations of the tumor as part of successful experimental treatment. Animals with involuted/ulcerated tumors will be treated with topical collasate at least every other day until resolved. This protects the compromised
1707-35001A	Iaizzo, Paul	Pig (Biomedical), Other* (USDA), Sheep (Biomedical), Dog	NON-PHARMACAUTICAL GRADE COMPOUNDS	see protocol for details

1707-34995A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	Animals will arrive on the protocol with an implanted vascular access port (VAP). The placement of a VAP is considered a minor surgical procedure (peripheral limb, not entering a major body cavity), essentially similar to routine catheter placement with the notable exception that the access site is placed underneath the skin. VAPs improve safety, and increase animal comfort when intermittent or recurrent venous access is required by avoiding painful 'catheter starts'.
1707-34988A	Parr, Ann	Rat	MULTIPLE SURGERY	The rat must first be injured and recover to model a spinal cord injury so that we can test functional alterations after motor cortex stimulation. Pain and distress will be controlled through analgesics and antibiotics. (Motor Evoked Potential (MEP) Recording) The rat must first be injured and recover to model a spinal cord injury and viral vectors allowed time for transduction so that we can test optogenetic modulation of the motor cortex. Pain and distress will be controlled through analgesics and antibiotics. (AAV viral injection into the motor cortex and electrode implantation) The rat must first be injured and
1707-34943A	Stephens, David	Bird (Other), Bird (Other)	SOCIAL HOUSING	For our experiments we need to carefully control and monitor the amount of food each individual eats per day. This level of control would be impossible if animals were housed in the same cage. A second problem with social housing is territoriality. Though starlings are known for their spectacular grouping behavior, they become territorial when in breeding condition (typically

1707-34941A	Lowe, Dawn	Mice	MULTIPLE SURGERY	The goal of one study is to determine plasmalemma excitability and the only way to do this is my activating muscle confraction via the implanted nerve cuff and simultaneously recording electrical activity of the muscle via the EMG electrodes. Thus, this second surgery to implant EMG recording electrodes, which is minimally
1707-34941A	Lowe, Dawn	Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details
1706-34934A	Johnson, Tim	Turkey, Turkey	EUTHANASIA METHOD	Cervical dislocation will be done on any poults to be euthanized before 3 days of age per the unit SOP. Poults are resistent to carbon dioxide asphyxiation due to their hatching under a high CO2 environment and cervical dislocation is needed in order to have the poults euthanized in a short time period. Cervical dislocation is allowed for poultry

1706-34930A	Bartolomucci, Alessandro	Mice	MULTIPLE SURGERY	We request an exception to allow for our use of AAV viral infusion and surgical optic fiber implantation for optogenetic studies. Use of two separate surgical procedures (AAV + fiber implantation) is beneficial, as it will reduce the amount surgery done at one time (reduces potential for tissue trauma), minimizes the need for anesthesia supplements during surgery, allow animals to fully recover between each class B surgery. It also maximizes the potential for animals to reach the study completion. Maximal viral-mediated gene transfer occurs approximately 3-8 weeks after infection, depending on the brain region and neuronal process (cell body versus terminals) being targeted. In vitro and in vivo studies begin at this time, but require up to 4 weeks of additional time for completion. However, optical implants are delicate, and generally only have reliable function for ~ 4 weeks. Therefore, is advantageous to implant them at a time when viral expression is maximal. This method will prevent subject loss due to optical implant failure, and will substantially reduce the overall number of animals
1706-34930A	Bartolomucci, Alessandro	Mice	SOCIAL HOUSING	see protocol for details
1706-34929A	Everson, Paul	Mice	EUTHANASIA METHOD	I have discontinued use of Isofluorane, since it is not necessary prior to euthanasia by cervical
1706-34914A	Clarkson, Christina	Horse, Cow (Biomedical), Pig (Biomedical), Goat, Sheep (Biomedical)	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	A sedative is administered prior to IV injection of pentobarbitol for euthanasia.
1706-34913A	Anderson, Grant	Mice	EUTHANASIA METHOD	These endpoints are highly susceptible to environmental changes; the use of anesthetics or CO2 has been demonstrated to alter the levels of neurotransmitters as compared to cervical dislocation. Personnel in this group have years of experience with cervical

1706-34912A	Anderson, Grant	Rat, Mice	EUTHANASIA METHOD	CO2 doesn't work well with pups so we will use decapitation after rat
1706-34906A	Lee, Anna	Mice	SOCIAL HOUSING	see protocol for details
1706-34906A	Lee, Anna	Mice	EUTHANASIA METHOD	Decapitation will be used for P0 or E15 mice using sharp scissors. The addition of sedation to these animals caninterfere with the success of
1706-34904A	Gupta, Kalpna	Mice	72 HOUR POST-OP ANALGESIA POLICY	In this study we are examining the effect of topical opioids on wound healing. Therefore, comparisons will be made between vehicle (without opioid or any analgesic) and opioid treated wounds on mice. The vehicle group therefore cannot receive any analgesics because that will interfere with the research question. We will make every effort
1706-34904A	Gupta, Kalpna	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Since to goal of Study #1 is to examine the effect of chronic treatment with morphine or cannabinoids on survival, it is necessary that the animals be
1706-34898A	Graham, Melanie	Mice	MULTIPLE SURGERY	Following transplant, after demonstration of a prolonged period of normoglycemia or insulin reduction greater than 50%, animals will undergo graft explant by removing the graft and following up the animals subsequent reversion to the diabetic state the functional state can be (or not) attributed to the graft. Animals that do not
1706-34897A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	see protocol for details

1706-34883A	Metzger, Joseph	Mice, Rat, Mice	TUMOR ENDPOINT CRITERIA	Endpoint criteria that we will follow for this study are as follows: □ 1. Inability to move or perform normal body functions □ 2. Skin necrosis and/or ulceration over the tumor □ 3. Clinical signs indicating tumor has metastasized (ie seizures, swollen abdomen, labored breathing and secondary masses)□ □ Endpoint criteria that we cannot follow: □ □ 1. At the end of the study, mice consume less food and are not as active as mice without tumors. □ 2. Tumor burden that causes a significant loss of body mass - adipose and muscle mass. □ □ Scientific justification for not following these criteria: □ □ Cancer cachexia is a clinical syndrome characterized by weakness, fatigue, poor appetite, and muscle and adipose wasting (Fearon KC et al. Am J Clin Nutr 2006;83:1345-50). The model we propose to use in our studies - male CD2F1 mice with colon-26 adenocarcinoma tumors is one of

1706-34883A	Metzger, Joseph	Mice, Rat, Mice	EUTHANASIA METHOD	Only performed on mice younger than P7 Because the experiments specifically involve using a model of cancer cachexia, mice are expected to lose a significant amount of body weight, including both adipose and muscle mass. Therefore we cannot follow the first criteria for euthanasia of weight loss in the animals. Additionally, anorexia (decreased food intake) is a natural part of the progression of cachexia in this model. Because mice are not housed individually, food intake for the cage can be monitored but not for individual mice. Moistened food can be placed in a petri dish at the bottom of the cage to facilitate
1706-34883A	Metzger, Joseph	Mice, Rat, Mice	SOCIAL HOUSING	see protocol for details

1706-34882A	Gregerson, Dale	Mice, Mice	MULTIPLE SURGERY	Some mice will receive multiple procedures; the most complicated of these experiments are mice that are made to be radiation bone marrow chimeras, followed by the optic nerve crush, followed by depletion of Tg cells. □ □ The bone marrow chimeras are done to introduce specific populations of immune cells (from Tg mice) that are sensitive to DTx, so that they can be eliminated upon toxin administration. The optic nerve crush is then done to stimulate recruitment of immune cells to the retina. In this protocol, we use mice that are > 6 wks of age to reduce radiation sensitivity. We use a large inoculum of BM cells (5-10 x 10^6) to promote rapid engraftment and recovery. Our previous experience with the diphtheria toxin allows us to use the minimum dose that is effective for either intraocular or iv administration, and the kinetics of its activity. We are now very experienced in the optic nerve crush, and rarely experience problems.□ (3) Optic nerve crush) Many mice will receive multiple

1706-34882A	Gregerson, Dale	Mice, Mice	72 HOUR POST-OP ANALGESIA POLICY	We originally requested an exception for use of post-op buprenorphine on 2/2/2011. It was justified as follows: "There is a growing literature on the beneficial effects of opioid receptor agonists on the survival of stressed or injured neurons. Since the goal of this research project is to discover the activities of endogenous factors that support neuron survival, these new finding raise the possibility that use of buprenorphine, or other opiates, will complicate our findings. Further, a recent paper suggests that opiates given at the time of injury, which would be post-op in our case, have the most significant effect. As a result, we request suspension of use of buprenorphine or similar agents post-op for the survival surgeries. Use of anti-inflammatories as post-op analgesics has been considered, including NSAIDS and glucocorticosteroids, but they have also been shown to affect neuron survival post-injury. For these reasons, we request exception to the common practice of using opiates for this particular post-op procedure." □ □ In a series of letters, (on hand) from
1705-34831A	Kotz, Catherine	Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details
1705-34831A	Kotz, Catherine	Mice	SOCIAL HOUSING	see protocol for details

1705-34830A	Hamilton Hart, Sara	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	In this model of cerebral malaria, there is some heterogeneity in the timing and incidence of severe disease (requiring euthanasia, since there are no defined treatments to reverse the lethal disease at that point). However, we need to distinguish between mice that become moribund and those with transient, mild illness, which may recover from the disease (for example, following the proposed cytokine treatments). We and others have explored use of other clinical features that would predict the inevitable onset of lethal disease prior to the criteria used (for example, we have collaborated with Dr. Aaron Johnson at Mayo Clinic, who has used MRI scans of ANKA infected mice as a potential way to anticipate the onset of disease
1705-34830A	Hamilton Hart, Sara	Mice	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	The procedure proposed is not a restriction in access to water, but instead is provision of water containing antibiotics. We have never seen evidence that decrease their water intake in the past when using this procedure (when water bottles were the norm - the consumption rate seemed similar to
1705-34826A	Peterson, Erik	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	For myositis studies, animal inability to ambulate to food or water will constitute an indication for immediate euthanasia
1705-34824A	Honda, Christopher	Rat	NON-PHARMACAUTICAL GRADE COMPOUNDS	We request use of non-pharmaceutical sodium pentobarbital in these terminal animals, because the availability of pharmaceutical grade pentobarbital (Nembutal) is unreliable and inconsistent, rendering it essentially unavailable for use in animal research. Solutions will be prepared using sterile procedures and sterile diluents (saline, ethanol, propylene
1705-34823A	Haskell-Luevano, Carrie	Mice	SANITATION FREQUENCY	see protocol for details

1705-34823A	Haskell-Luevano, Carrie	Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details
1705-34823A	Haskell-Luevano, Carrie	Mice	SOCIAL HOUSING	see protocol for details
1705-34823A	Haskell-Luevano, Carrie	Mice	EUTHANASIA METHOD	Using anesthesia interferes with gene expression for certain brain tissues collected and glucose measurements. For Decapitation of the mice, scissors are preferred to limit damage that can occur to the brain when using a guillotine and scissors are easier to clean in between animals to remove blood
1705-34793A	Ponder, Julia	Bird (Other), Bird (Other)	ENVIRONMENTAL ENRICHMENT	Requesting an exemption to social housing for education birds. Raptors are not social animals. They are predators and, as such, may present risk to each other in a group housing
1705-34793A	Ponder, Julia	Bird (Other), Bird (Other)	SOCIAL HOUSING	Requesting an exemption to social housing. Raptors are not social animals. They are predators and, as such, may present risk to each other

1704-34752A	Ferrington, Deborah	Mice	72 HOUR POST-OP ANALGESIA POLICY	Post-operative pain management has been addressed by our collaborator, Dr. Dale Gregerson. In their protocol, Dr. Gregerson explains the following. Regarding use of buprenorphine: An ophthalmologist (cornea surgeon), Dr. Steven Kaufman, at U of M, and also Dr. Roland Gunther, have been consulted about post-surgical analgesia for the intraocular injections we have proposed. Both confirm that only topical proparacaine is needed. We proposed to use topical proparacaine, and also ketamine & xylazine for restraint, as the procedure requires precision. No post-operative analgesia is needed. For reference, note that patients do not receive general anesthesia or post-op meds for such injections, even when done repeatedly and for months to years. Only topical anesthetic drops, such as proparacaine, is used for them. For these reasons, we see no need for post-op meds in these mice. Further, there is a growing literature on the beneficial effects of opioid receptor agonists on the survival of stress or injured neurons. Since the goal of this research is to discover
1704-34752A	Ferrington, Deborah	Mice	EUTHANASIA METHOD	Any chemicals used for euthanasia and/or sedation may affect the cells and inhibit the success of cell growth

1704-34740A	Griffith, Thomas	Mice	MULTIPLE SURGERY	In some situations, mice will have two surgeries performed, intrarenal (i.r.) tumor implantation followed by i.r. immunotherapy treatment. The second survival surgery is necessary to facilitate injection of the immunotherapeutic directly into the tumor-bearing kidney. It is important to emphasize that all injections will be through the peritoneum. The peritoneum will not be opened in any mice. (Intratumoral Therapy/Treatment) In some situations, mice will have two surgeries performed, intrarenal (i.r.) tumor implantation followed by i.r. immunotherapy treatment. The second survival surgery is necessary to facilitate injection of
1704-34740A	Griffith, Thomas	Mice	72 HOUR POST-OP ANALGESIA POLICY	The surgical procedure involves a simple skin incision to administer the intratumoral therapy/treatment into the kidney through the intact peritoneum. No incision is made in the peritoneum. The skin incision is then sealed with Vetbond. We will administer Bupivicaine (1.25 mg/kg) at the incision site on the day of surgery. We are requesting only a single administration of Bupivicaine. This decision was reached after consultation with CCRB area veterinarians Dr. C. Sivula and Dr. S. Hashway. (Intratumoral Therapy/Treatment) The surgical procedure involves a simple skin incision to administer the intratumoral therapy/treatment into the kidney through the intact peritoneum. No incision is made in the peritoneum. The skin incision is then sealed with Vetbond. We will administer Bupivicaine (1.25 mg/kg)
1704-34740A	Griffith, Thomas	Mice	EUTHANASIA METHOD	All staff have been trained in and are competent at cervical

1704-34740A	Griffith, Thomas	Mice	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	Since we are not restricting the amount of food/water, but rather changing the type of food they eat to one that most likely will increase their body weight, we will not be
1704-34730A	Netoff, Tay	Rat	MULTIPLE SURGERY	Two surgeries are required as part of the same project: 1 epilepsy induction surgery and 2 implantation surgery. Epilepsy induction must be done separately from implantation because it is essential for rat to be quickly recovered for the kainic acid to work properly. (Chronic epilepsy induction) Two surgeries are required as part of the same project: 1 epilepsy induction surgery and 2 implantation surgery.□ Epilepsy induction must be done
1704-34729A	Mashek, Douglas	Mice, Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details
1704-34729A	Mashek, Douglas	Mice, Mice	SOCIAL HOUSING	see protocol for details
1704-34728A	Kawakami, Yasuhiko	Fish (Zebra fish)	72 HOUR POST-OP ANALGESIA POLICY	For zebrafish, the same treatment for other animals, such as mice, are not available, because zebrafish are aquatic animals. Thus, analgesia cannot be provided to zebrafish. If fish show distress or abnormal behavior after surgery (floating belly up or random swimming among the

1704-34724A	Dougherty, Brendan	Rat	MULTIPLE SURGERY	Our studies relate to the effects of circulating sex steroids on respiratory motor control and neuroplasticity. As most sex steroids are produced in the gonads, removal of the gonads is vital to answer fundamental experimental questions. Removing the gonads and allowing for a week of recovery creates a "new baseline" of reduced sex steroid production and circulation for which to conduct our studies. These procedures are have significant scientific merit and are considered standard procedures in the study of sex steroids. Rats receiving gonadectomies (or sham surgeries) receive pain medication at the time of surgery to minimize discomfort. The procedures are very fast (5-10 minutes per rat) allowing rats to recover from anesthesia quickly and no functional deficits are anticipated. (Gonadectomy) As described with gonadectomy, our studies center on the effect of sex steroids in respiratory motor control and neuroplasticity. following removal gonads, our capacity to reintroduce steroids in a controlled manner is critical to interpretation of our results. Similarly, to discern how
1704-34724A	Dougherty, Brendan	Rat	72 HOUR POST-OP ANALGESIA POLICY	Adequate analgesic effects for these routine and very brief procedures are accomplished in a single pre-operative administration.

1704-34724A	Dougherty, Brendan	Rat	NON-PHARMACAUTICAL GRADE COMPOUNDS	We may utilize non-pharmaceutical-grade urethane as all acute neurophysiological experiments are terminal. Transition from inhaled isoflurane to Urethane is necessary for studies of respiratory neurophysiology because isoflurane is a profound respiratory depressant, while urethane maintains long-lasting anesthesia with minimal effect on cardio-respiratory function. (Acute neurophysiological measures) We may utilize non-pharmaceutical-grade Pancuronium Bromide if/when pharmaceutical grade is unavailable. The pharmaceutical grade version of this compound is currently available through only one vendor (Pfizer) and is frequently back ordered for weeks to months at a time. Also, this compound is stable
1704-34724A	Dougherty, Brendan	Rat	SOCIAL HOUSING	see protocol for details
1704-34711A	Ebbini, Emad	Rat, Mice	MULTIPLE SURGERY	This procedure will be used in conjunction with the focused ultrasound procedure. (Ultrasound marker) This surgery will be used in
1703-34693A	Hart, Geoffrey	Mice	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	The procedure proposed is not a restriction in access to water, but instead is provision of water containing antibiotics. We have never seen evidence that decrease their water intake in the past when using this procedure (when water

1703-34685A	Kelly, Rosemary	Pig (Biomedical)	MULTIPLE SURGERY	The placement of the constrictor on the LAD is an essential component to the creation of hibernating myocardium. Pain and distress will be minimized by using a multi modal ,balanced anesthetic protocol. The pig are socialized with with people to decrease the fear response before and after the procedure to ease in handling and transport. The pigs are monitored closely in recovery until they can stand on their own. (Thoracotomy - LAD Hibernation) The revascularization procedure is an essential component of this study to evaluate the effects of bypass on hibernating myocardium and how stem cells or mitochondrial transplant may serve as an adjunctive therapy. Pain and distress will be minimized by using a multi modal ,balanced anesthetic
1703-34658A	Stromnes, Ingunn	Mice, Mice	MULTIPLE SURGERY	One prior surgery to implant orthotopic tumors into the pancreas will be performed 80-120 days prior
1703-34631A	Cvetanovic, Marija	Frog (Other), Rat, Guinea Pig, Mice	EUTHANASIA METHOD	Frogs will be euthanized by double-pithing followed by decapitation. We have to resort to physical methods for euthanasia as chemical methods such as barbiturates, tricaine or benzocaine produce long-lasting blockade of voltage-dependent and ligand-dependent ion channels

1703-34627A	Vossel, Keith	Mice	MULTIPLE SURGERY	In the mice that are undergoing multiple survival procedures, we are interested in studying the effect of glial rectifying potassium channel (Kir4.1) overexpression on seizure activity. To ensure that expression of this protein is localized to specific brain regions, it is necessary to stereotaxically inject recombinant AAV directly into the brain. Stereotaxic intracranial rAAV injection is a relatively safe method of inducing gene expression with great spatiotemporal specificity and few, if any, side effects (Stoica et al. Curr Protoc Microbiol 2013. Ch 14, Unit 14D.5). We suspect that mice injected with rAAV containing Kir4.1 will exhibit some seizure activity, but no other detrimental effects are anticipated from this procedure.□ As part of this project, it is essential to determine not only if overexpression of Kir4.1 leads to seizures, but whether this channel may drive subclinical epileptic spikes and other other aberrant network phenomena as detected by EEG. Implantation of EEG
1703-34627A	Vossel, Keith	Mice	EUTHANASIA METHOD	E18-21 mouse embryos and neonatal mouse pups P0-1 days will be euthanized by rapid decapitation using a large surgical-grade scissors without anesthesia. Rapid decapitation is the preferred method to sacrifice pups of this age since it is the most rapid method, does not introduce adverse substances or gases that would affect sensitive neonatal neurons, and avoids any discomfort associated with injections. All individuals performing decapitation without anesthesia will
1703-34627A	Vossel, Keith	Mice	SOCIAL HOUSING	see protocol for details
1703-34627A	Vossel, Keith	Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details

1703-34627A	Vossel, Keith	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Avertin is not available as a pharmaceutical grade agent. We have used Avertin as an anesthetic for many years and find that it very quick and effective relative to the other anesthetics. It is a reliable agent for inducing anesthesia with low risk of respiratory suppression or occupational exposure, in comparison with using inhaled anesthetics for inducing anesthesia. Avertin stock solution has an assigned expiration date of 6 months and is stored at 4 degrees Celsius protected from light. Working solutions of Avertin will be made in a biosafety cabinet and will
1703-34617A	Fairbanks, Carolyn	Mice, Rat	MULTIPLE SURGERY	For the study of mecahnisms electroacupuncture-induced analgesia we need to both induce a state of hypersensitivity (reflective of neuropathic pain) requiring peripheral nerve injury surgery and then later implant spinal microdialysis fibers in order to collect neurotransmitters during and immediately following application of electroacupuncture. These procedures will be separate by a week. For the study of the efficacy of
1703-34617A	Fairbanks, Carolyn	Mice, Rat	72 HOUR POST-OP ANALGESIA POLICY	Subjects with peripheral neuropathy cannot receive post-operative analgesics because these will inhibit the spinal neuroplasticity intended to
1703-34617A	Fairbanks, Carolyn	Mice, Rat	EUTHANASIA METHOD	We are trained and experienced in the appropriate technique and anesthetization and sedation elevates the stress to the subject. We only intend to use cervical dislocation as an emergency method

1703-34616A	Vulchanova, Lucy	Mice, Rat	MULTIPLE SURGERY	In some mice or rats, sciatic nerve injection of AAV viral vectors or brain injections of viral vectors or neuronal tracers will precede (1-6 weeks) or follow (2-4 weeks) Spared Nerve Injury. The addition of these injections are not expected to exacerbate the level of pain and distress associated with spared nerve injury. The rationale for administering the viral vector intraneurally is that intraneural delivery will target only sensory neurons. Intraneural delivery will be compared to intrathecal delivery, which will result in transduction of both spinal cord and sensory neurons. The comparison between the two routes of delivery will provide information about the relative contribution of spinal and sensory neurons to the pain mechanisms under investigation. The rationale for injection in VPL or parabrachial nucleus prior to SNI is: 1) to label projection neurons for identification in subsequent ex vivo physiological experiments, and 2) to deliver neuromodulatory genes to projection neurons for subsequent
1703-34616A	Vulchanova, Lucy	Mice, Rat	72 HOUR POST-OP ANALGESIA POLICY	Post-operative analgesic therapy is contraindicated because the objective of the procedure is to determine whether the experimental treatment causes hypersensitivity. Provision of analgesics would inhibit
1703-34616A	Vulchanova, Lucy	Mice, Rat	SOCIAL HOUSING	see protocol for details

1703-34616A	Vulchanova, Lucy	Mice, Rat	NON-PHARMACAUTICAL GRADE COMPOUNDS	Exception is requested for the use of non-pharmaceutical grade urethane for non-survival surgeries. In our experience, this usually produces a very stable and long-lasting (8-16 hours) state of anesthesia, which is the reason for choosing this non-pharmaceutical grade anesthetic
1702-34614A	Parr, Ann	Mice, Rat	MULTIPLE SURGERY	The rat must first be injured and recover to model a spinal cord injury so that we can test our cell transplants. Pain and distress will be controlled through analgesics and antibiotics. (Spinal Cord injury and Scaffold Transplantation) Three survival surgeries are necessary because a spinal cord injury is necessary to evaluate whether sNPC/scaffold transplantation is effective at resolving the CNS deficits associated with spinal cord injury. Then, anterograde axonal tracing is utilized to confirm that transplanted sNPCs are forming functional synaptic connections with the

1702-34612A	Brady, Valerie	Fish (Other)	ANESTHESIA, SURGERY, AND POST-PROCEDURAL RECORDKEEPING	Dumke will follow INAD policy on anesthesia data recording (added as attachment). We are inducing minor sedation to make fish handleable, so their time in anesthesia until recovered is expected to be less than 15 minutes. INAD policy states that individual fish records do not need to be collected for fishes immersed in 40 mg/L solution, become handleable within 5 minutes and are therefore removed from immersion, and time to recovery does not exceed 20 minutes (pg. 11 of INAD:AQUI-S 20E - Study Protocol). Deviations outside these parameters will be recorded to comply with INAD program. At minimum, we will be collecting and reporting information on dosage, fish species, numbers of each species treated, and whether the outcome was satisfactory (i.e. did fish become handleable within 5 minutes and did they recover within 20?). We will start with 40 mg/L solution strength but can adjust in the field. For example, trout may enter unintended deep sedation in a 40 mg/L solution, and non-trout fishes may take longer than 5 minutes to attain adequate sedation. If that

1702-34610A	Deng, Yibin	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Our animal studies are trying to determine whether and how the genetic alterations or chemoprevention/chemotherapy will provide any survival benefit for the mouse cohorts. In order to generate a credible mouse survival curve, we need to observe the mouse cohorts up to "natural death". However, these mice are valuable and needed for pathological and biochemical analyses, we cannot allow them to die spontaneously and risk organ deterioration. Rather, we will harvest mice when they are determined to be moribund-"close to death endpoint". One Criterion from UMN IACUC guideline will potentially affect our studies to observe survival benefits. Based on "UMN IACUC Euthanasia Guideline", we have provided a very strict criteria to determine the moribund state, and these must include at least one of the first two criteria and at least one of the three remaining criteria: (1) progressive weight reductions up to 10% of body weight measured on two separate occasions over a period of one week; (2) sudden, unexplained weight loss of at least 10% of body weight over a period of one week; (3) failure to gain weight
1702-34601A	Whittaker, Joe	Mice, Voles, Ground Squirrels, etc, Shrews, various species, Bats, various species, Small to Medium Carnivores	SANITATION FREQUENCY	see protocol for details

1702-34601A	Whittaker, Joe	Mice, Voles, Ground Squirrels, etc, Shrews, various species, Bats, various species, Small to Medium Carnivores	PHYSICAL RESTRAINT	There will be no intermittent release. Once set traps will remain undisturbed. Any more frequent checks would impact other animals entering traps and lower capture rates. Our goal is to capture as many individuals and different species as possible. Extra time in the field would negatively impact this goal. (Live trapping - mice, voles, ground squirrels, etc.) Traps are routinely left overnight when trapping nocturnal or crepuscular animals. For the
1702-34601A	Whittaker, Joe	Mice, Voles, Ground Squirrels, etc, Shrews, various species, Bats, various species, Small to Medium Carnivores	EUTHANASIA METHOD	We will only use cervical dislocation in the event of a severe injury and to bring about an immediate end to suffering. Attempts to provide any anesthesia would further prolong suffering. I have never had to do this procedure on any of the medium carnivores I have captured. If a medium-sized carnivore is in such distress to warrant euthanasia it will likely already be unconscious or debilitated and in such distress that attempts to sedate or use anesthesia would prolong suffering.
1702-34600A	Starr, Tim	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	In cases where the tumor volume cannot be measured externally and mice do not display any of the specific tumor endpoint criteria, we will use moribundity as a terminal endpoint in the study. The nature of the cancers we work with (gastrointestinal tract, lung, and ovarian) do not generally manifest as measurable tumors and the other tumor endpoint criteria are not evident. For these animals we cannot easily determine morbidity or tumor mass as a percentage of body

1702-34600A	Starr, Tim	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	The choice of general anesthetic agents can be difficult and confusing since every agent has specific strengths and weaknesses. Avertin has been used as an anesthetic in many labs for many years at the University of Minnesota and was routinely approved under IACUC protocols. Avertin has also been used at many other institutions, including the University of Wisconsin and Jackson Laboratories, where it was the "anesthetic of choice" for mice undergoing short surgical procedures. I have personally used Avertin under IACUC approved protocols in the past and it has worked well with no untoward or unexpected events. Avertin does not cause as much bradycardia including effects on loading conditions and ventricular function compared to ketamine (Hart, et al., Am J Physiol Heart Circ Physiol 2001) and Avertin has a lower mortality rate than Ketamine (Harrison, et al., Investigative Ophthalmology & Visual Science May 2008, and personal experience). Avertin not only acts as a general anesthetic, it also provides good
1702-34584A	Tran, Phu	Mice, Rat	EUTHANASIA METHOD	Dr. Tran and his staff are experienced in performing mouse decapitation proficiently. Rapid decapitation without sedation is performed with large sharp scissors only in juvenile rats (P0, P7, or P15 timepoints in our experimental design). All laboratory personnel who perform this euthanasia method have demonstrated technical skill with the

1702-34580A	Perlingeiro, Rita	Mice	MULTIPLE SURGERY	In some few cases (Serial Injury) we will re-injure the muscle with cardiotoxin after 8-weeks, then 3-week, then 3 more weeks. This is to test if the cells are capable of regenerating under for stringent conditions after multiple injuries. As stated elsewhere, the the surgery is minor, involving a small incision with little noticeable pain, distress and
1702-34580A	Perlingeiro, Rita	Mice	72 HOUR POST-OP ANALGESIA POLICY	Because the effect of analgesics on muscle regeneration is unknown, and because we want to examine the role of inflammatory cells in skeletal muscle damage/regeneration, we cannot use any agents that may interfere with inflammation. These mice can therefore not be treated with analgesics. The surgeries that required post-op analgesics are minimally invasive requiring only a small (~0.5cm) incision and needle injection. The veterinarian Dr. Hashway has commented that the surgery would cause very minor pain and therefore should not substantially negatively affect the welfare of the animals. If going forward, we find that we cannot perform these experiments due to excessive pain/distress we will then add an analgesic. However, since we do not know the effects of opioids or local analgesics on muscle regeneration, in addition to the strong effect of addiction and dependence that the mice may experience, we request a switch to Pain class C without the administration of any analgesics.

1702-34580A	Perlingeiro, Rita	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Our justification is that TBE is only used as anesthetic in non survival procedure in the context of physiological recording of muscle force using an organ bath, where our usual anesthetic ketamine/xylazine is not indicated due to its potential muscle relaxant effect as well as its sensory and motor uncoupling activity from the brain. The alternative of isoflurane pose special challenges with the scavenging of waste anesthetic gases and the requirement of an apparatus/system that is only located in our RAR facility that is too distant from our complex Organ Bath apparatus, neither of which can be moved. Additionally, TBE has been approved by our IACUC on our protocol. TBE is reconstituted in sterile conditions as 2,2,2 Tribromoethanol 0.5 g in 1 mL of 2 methyl-2 butanol, mixed at 37 C and diluted with 40 mL distilled sterile water. The final solution is then filtered through 0.22 micron filter and kept refrigerated (4c) and protected from light. It can be stored up to 2 weeks but it is
1702-34545A	Mand, Sandy	Fish (Other)	SANITATION FREQUENCY	We use either under-gravel filters where the sediment waste on the gravel is siphoned out monthly or above-tank charcoal filter systems where the charcoal cartridges are

				NSAIDs or other anti-inflammatory drugs will not be administered to these animals at any point in the study as they will interfere with the immunological parameters that are central to this study. Recent articles that refer to the potential use of other drugs (e.g., Gabapentin, Memantin and Mexiletin) for analgesia were considered as alternate analgesic agents. However, these compounds have significant effects on neural/brain function and would interfere with our ability to study the oxidative stress response in the brain during viral encephalitis and hence will not be used. (Intracerebroventricular stereotaxic injection of MCMV)
1701-34539A	Lokensgard, James	Mice	72 HOUR POST-OP ANALGESIA POLICY	NSAIDs or other anti-inflammatory drugs will not be administered to
1701-34527A	Kotz, Catherine	Mice	ENVIRONMENTAL ENRICHMENT	see protocol for details
1701-34527A	Kotz, Catherine	Mice	SOCIAL HOUSING	see protocol for details
1701-34523A	Deng, Yibin	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	In the proposed animal studies, we will determine genetic changes-caused tumor-related survival and thus we need to euthanize the mouse cohorts as possible as close

1701-34522A	Bartolomucci, Alessandro	Mice	MULTIPLE SURGERY	We request an exception to allow for our use of AAV viral infusion and chronic icv peptide delivery in otherwise undisturbed animals. Use of two separate surgical procedures (AAV + minipump implantation) is beneficial, as it will reduce the amount surgery done at one time (reduces potential for tissue trauma), minimizes the need for anesthesia supplements during surgery, allow animals to fully recover between each class B surgery. It also maximizes the potential for animals to reach the study completion. □ Maximal viral-mediated gene transfer occurs approximately 3-8 weeks after infection, depending on the brain region and neuronal process (cell body versus terminals) being targeted. In vitro and in vivo studies begin at this time, but require up to 4 weeks of additional time for completion. This method will substantially reduce the overall number of animals required to complete experimental studies. This conservation of animal resources is particularly useful when studies occur in transgenic animals, which require considerable time and
1701-34516A	Bischof, John	Mice, Rat	EUTHANASIA METHOD	The lab staffs are well trained and proficient enough to perform the
1701-34513A	Lokensgard, James	Mice	72 HOUR POST-OP ANALGESIA POLICY	NSAIDs or other anti-inflammatory drugs will not be administered to these animals at any point in the study as they will interfere with the immunological parameters. The use of analgesics would interfere with some of the endpoints and immune assessments in this study and will not be routinely used. (
1612-34440A	Guedes, Alonso	Mice	72 HOUR POST-OP ANALGESIA POLICY	This is a model of hyperalgesia that is being used to investigate the role of CD38 in neuropathic pain. The use of analgesics will preclude
1612-34440A	Guedes, Alonso	Mice	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	Since animals wont have diet restriction and wont loose weight, and due to the potential long duration of the study, we would ask

1612-34440A	Guedes, Alonso	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	We request an exception for the use of non-pharmaceutical grade compounds for this procedure. Avertin (tribromoethanol) is an effective anesthetic agent for this procedure due to the fact that this procedure, is not a survival procedure and therefore there is no risk for ulcers or tissue necrosis at site of injection. Further Avertin is not harmful or a controlled substance and under proper preparation it is a potent anesthetic. Preparation of Avertin will be made following the university and IACUC guidelines: -Sterile fileter with 0.2 micron filter. -Store and use under sterile conditions. -Store in the dark bottle of foil covered container -Do not use if the solution becomes discolored or has a precipitate. -Check pH before each use and use
1612-34428A	Regal, Jean	Rat	MULTIPLE SURGERY	In this procedure, animals undergo surgery with anesthesia on gestation day 14 to cause placental ischemia. Then on gestation day 17 or 18 a carotid artery catheter is placed under isoflurane anesthesia for monitoring of blood pressure on gestation day 19 prior to exsanguination under anesthesia and necropsy. The carotid artery catheter is not placed at time of RUPP surgery on day 14 of gestation because maintaining patency of the catheters for prolonged periods of time is difficult in the rat and previous experiments by Gilbert have revealed that an
1612-34428A	Regal, Jean	Rat	SOCIAL HOUSING	see protocol for details
1612-34416A	Osborn Jr, John	Mice	MULTIPLE SURGERY	These experiements require a procedure to implant telemetry and a separate procedure for treatment groups, for baseline recordings two or more separate procedures are

1612-34393A	Ingolfsland, Ellen	Rat	BLOOD COLLECTION LIMIT	Severe anemia is desired to mimic the degree of anemia seen clinically in preterm neonates. This phlebotomy protocol has been validated and published (Wallin DJ, Tkac I, Stucker S, et al. Phlebotomy-induced anemia alters hippocampal neurochemistry in neonatal mice. Pediatric research. 2015;77(6):765-771.) and is used in our lab under IACUC protocol 1412-32111A in mice. As mice have tolerated this procedure, we expect the rats too as well, though they may be at increased risk of death given anemia + hyperoxia/ hypoxia chamber. Further, to justify the amendment to the protocol to increase volume phlebotomize/ 24 hour period, a study of iron deficiency anemia which fed dams an iron deficient diet and then after weaning, fed pups an iron deficient diet, found pups to have hematocrits of 18% at 6 weeks of life (Oh S, Shin P, Chung J. Effects of developmental iron deficiency and post-weaning iron repletion on the levels of iron transporter proteins in rats. Nutr Res Pract. 2015; 9(6):613-618.) There
1612-34391A	Lund, Troy	Mice	TAIL BIOPSY	tail clip: The tail tip will be immersed in ice cold isopropyl alcohol or for 10 seconds (this will also serve to disinfect the tail). 3 mm of tail tip will be cleanly cut using clean gloves and a sterile sharp scalpel or razor blade. Bleeding to be controlled with direct pressure. Mouse to be observed in the cage after releasing to assure
1612-34372A	Thayer, Stanley	Rat, Mice	EUTHANASIA METHOD	This method of euthanasia will only be used for harvesting tissue from neonatal mice. Neonates are resistant to CO2 induced death and thus rapid decapitation with sharp
1612-34365A	Kofuji, Paulo	Mice	SOCIAL HOUSING	see protocol for details

1612-34360A	Jenkins, Marc	Mice	WEEKLY WEIGHING EXCEPTION (FOOD/FLUID)	The food consumption of the mice should not change with this addition of 2W peptide and no weight loss is anticiptated. If a mouse is found to be in distress, an RAR vet or vet tech will be consulted and allowed to treat as needed or the mouse will be euthanized.□ (2W chow) The food consumption of the mice should not change with this amino acid diet and no weight loss is anticiptated. If a mouse is found to be in distress, an RAR vet or vet tech will be consulted and allowed to treat as needed or the mouse will be euthanized. (amino acid diet) Bromodeoxyuridine is not acutely toxic to mice at the dose being given and no impact on the animals health is expected. If a mouse is found to be in distress, an RAR vet or vet tech will be consulted and allowed to treat as needed or the mouse will be euthanized. (Drinking water with bromodeoxyuridine) The water consumption of the mice should not change with the addition of OVA and no weight loss is
1611-34310A	Low, Walter	Mice, Pig (Biomedical)	EUTHANASIA METHOD	Procedure is instant. Mice are dispatched immediately. Also, we do not want the embryos to be anesthetized upon harvest. We will only use decapitation for embryos, as described in the procedures.
1611-34309A	Vezys, Vaiva	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	In our model of intestinal pathology and autoimmunity, we use death as an endpoint, especially when we are testing any interventions to alleviate intestinal pathology. This is because rescuing animals from death is a very high bar for efficacy. The endpoints are death or recovery from having malaise or being

1611-34309A	Vezys, Vaiva	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	Avertin has been used in on-going and previous studies performed by our lab, therefore, in order to avoid introduction of a new variable and to allow for cross comparison with previous and current experiments, we request to continue the use of Avertin as an anesthetic vs other
1611-34300A	Mand, Sandy	Fish (Other)	SANITATION FREQUENCY	We use either under-gravel filters where the sediment waste on the gravel is siphoned out monthly or above-tank charcoal filter systems where the charcoal cartridges are changed based on manufacturer's recommendations. Water is
1611-34300A	Mand, Sandy	Fish (Other)	SOCIAL HOUSING	We have a few varieties of electric fish. As mentioned elsewhere in this protocol, when electric fish are presented with the electrical signal of another fish, one will change its signal in the "jamming avoidance response." Since this is what we study in the class, it is important to allow the fish time alone before we begin our experiments. The ghost knives and elephant noses usually can be socially housed except just before and during the experimental period when we need their electrical signalling to settle into their innate pattern. So one request is to take these fish out of social housing during the experimental period, returning them to social housing afterward if they will settle in together (note that we currently have one ghost knife that is picked on by all fish so it is never socially housed. We need to be able to use our best judgement on putting individual fish together.) The third variety of electric fish we
1610-34265A	Whitley, Chester	Mice	NON-PHARMACAUTICAL GRADE COMPOUNDS	NA (AAV vector administration) NA (AAV vector administration)

1610-34251A	Lin, Jizhen	Mice	TUMOR ENDPOINT CRITERIA	Based upon our previous studies, ulceration of xenograft tumors occurs in drug treated animals. If I kill the animals when skin ulceration occurs over tumors, I will achieve nothing in this project because immature termination of an effective treatment. I have observed that these early ulcerations on xenograft tumors formed crusts, fell off, and eventually healed. After that, only colored skin (the smooth surface with a little scar underneath) could be seen and xenograft tumors disappeared. Based upon this finding, we would like to make a modification on the original euthanization criteria regarding skin ulceration over xenograft tumors. This change allows me to continue the treatment till xenograft tumors disappear or treatment reaches its end point (1 month after injecting cancer cells or 10 weeks after starting the treatment). Early ulceration caused by drug treatment is not a sign to euthanize the animals when tumors remain small. Instead, it is a good sign to continue the protocol as defined in our original application when tumors remain small. It means that drug treatment begins to kill some tumor
1610-34250A	Low, Walter	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	A state of moribundity must be reached to determine if mice treated with ultrasound experience tumor reduction and/or ablation, and whether they live longer than their untreated counterparts. Each

1610-34244A	Deng, Yibin	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Our animal studies are trying to determine whether and how the genetic alterations or chemoprevention/chemotherapy will provide any survival benefit for the mouse cohorts. In order to generate a credible mouse survival curve, we need to observe the mouse cohorts up to "natural death". However, these mice are valuable and needed for pathological and biochemical analyses, we cannot allow them to die spontaneously and risk organ deterioration. Rather, we will harvest mice when they are determined to be moribund-"close to death endpoint". One Criterion from UMN IACUC guideline will potentially affect our studies to observe survival benefits. Based on "UMN IACUC Euthanasia Guideline", we have provided a very strict criteria to determine the moribund state, and these must include at least one of the first two criteria and at least one of the three remaining criteria: (1) progressive weight reductions up to 10% of body weight measured on two separate occasions over a period of one week; (2) sudden, unexplained weight loss of at least 10% of body weight over a period of one week; (3) failure to gain weight

1610-34229A	Cheeran, Maxim	Mice	72 HOUR POST-OP ANALGESIA POLICY	Animals will receive an application of lidocaine gel (2%) in and around the skin incision to alleviate the irritation and pain associated with the surgery. From past experience animals recover from the surgery and return to normal behaviors (feeding, etc) within 12-24 h. Feeding and watering schedules will not be altered for the surgery or post-surgery. NSAIDs or other anti-inflammatory drugs will not be administered to these animals at any point in the study as they will interfere with the immunological parameters that are central to this study. In addition to monitoring animals post-anesthesia, daily monitoring for loose cannulas, wound infections, or mutilations will be performed up to 7 d post-surgery. Animals that lose their cannula before the treatment protocol is complete will be anesthetized and euthanized. (Canulation surgery) The animals will be monitored until they can independently maintain sternal recumbency or can stand and move about before leaving the surgery room. Pain post-surgery is expected due to injury to the scalp/skin incision. Animals will

				Some animals will receive two surgeries – one to provide DREADD-based virus to transfect cells and the second to implant the hyperdrive device. The transfection takes 3-4 weeks to take full effect, and the hyperdrive takes 1-2 weeks to reach its target, with the best recordings occurring during the subsequent several weeks. This means that if we did both procedures in the same surgery, the optimal time for DREADD transfection and hyperdrive recording will be mismatched. Therefore, we will do two surgeries, one, first to transfect with DREADDs and the second to implant the hyperdrive. Rats will have at least 2 weeks between surgeries.
1610-34226A	Redish, David	Rat	MULTIPLE SURGERY	This procedure will (by definition) be a second surgery. This
1610-34226A	Redish, David	Rat	SOCIAL HOUSING	see protocol for details

1609-34180A	Geller, Melissa	Mice	MULTIPLE SURGERY	The manufacturer of these osmotic pumps explains why removal is necessary (found here: http://www.alzet.com/products/guide_to_use/implantation_and_explantation.html): Explanting ALZET Pumps Surgical removal of the ALZET pumps is accomplished in the anesthetized animal via a simple skin incision. If the pump has been in place longer than a couple of weeks, or the infusate is an irritant, it may be necessary to free the pump from surrounding connective tissue in order to remove it. The pump should be removed in the following circumstances: To verify delivery by measuring residual volume To verify stability & bioactivity of the test agent in solution No later than the recommended “explant by” date (see below) Note that an explanted pump cannot be reused.

1609-34137A	Newman, Eric	Mice	MULTIPLE SURGERY	Mice will be prepared for chronic awake cortical imaging in two steps. In the first surgery, the skin over the scalp will be removed and a metal head bar will be permanently attached to the skull with cyanoacrylate glue and dental cement. The animal will then be allowed to recover and given adequate antibiotics Baytril (Bayer; 5mg/kg) and pain medication Buprenex (2mg/kg) so that it fully recovers and is pain-free. The animal will then be acclimated to being fixed to a frame under a microscope for several days. Following acclimation, a second surgery will be performed to create a thinned-skull cranial window for imaging the cortex. The reason to perform the surgery in two steps is that following the creation of the cranial window and recovery from the second surgery, which will take 2 to 3 days, we can immediately begin our imaging sessions on the awake animal. The animal will have already been acclimated to being fixed under the microscope. However, this immediate imaging paradigm may not always be necessary and we will
1609-34120A	Schwertfeger, Kaylee	Mice, Mice	MULTIPLE SURGERY	Because the primary tumors reach endpoint prior to establishment of robust metastasis, primary tumor resection will be necessary to assess metastatic growth and burden in these models. All procedures for tumor resection will include anesthesia and pain relief in the same manner as provided for the initial surgery. Due to the
1608-34110A	Segura, Bradley	Mice, Guinea Pig	EUTHANASIA METHOD	Decapitation is a standard approach for procurement of neural system tissue, sedatives may interfere with the cellular dynamics. Decapitation of guinea pigs will be provided by individuals with a demonstrated high degree of technical proficiency. We
1608-34101A	Yang, Yi-Mei (Amy)	Mice	SOCIAL HOUSING	see protocol for details

1608-34101A	Yang, Yi-Mei (Amy)	Mice	EUTHANASIA METHOD	Mice are sacrificed by decapitation using a DecapiCone and a sterile sharp blade. The DecapiCone is a plastic conical rodent restraint device that is commonly used to restrain animals in order to reduce stress from handling, and to minimize the chance of injury to experimenters. This way, a rapid
1608-34064A	Deng, Yibin	Mice	EUTHANASIA DEATH/MORIBUND ENDPOINT	Our animal studies are trying to determine whether and how the genetic alterations or chemoprevention/chemotherapy will provide any survival benefit for the mouse cohorts. In order to generate a credible mouse survival curve, we need to observe the mouse cohorts up to "natural death". However, these mice are valuable and needed for pathological and biochemical analyses, we cannot allow them to die spontaneously and risk organ deterioration. Rather, we will harvest mice when they are determined to be moribund-"close to death endpoint". One Criterion from UMN IACUC guideline will potentially affect our studies to observe survival benefits. Based on "UMN IACUC Euthanasia Guideline", we have provided a very strict criteria to determine the moribund state, and these must include at least one of the first two criteria and at least one of the three remaining criteria: (1) progressive weight reductions up to 10% of body weight measured on two separate occasions over a period of one week; (2) sudden, unexplained weight loss of at least 10% of body weight over a period of one week; (3) failure to gain weight

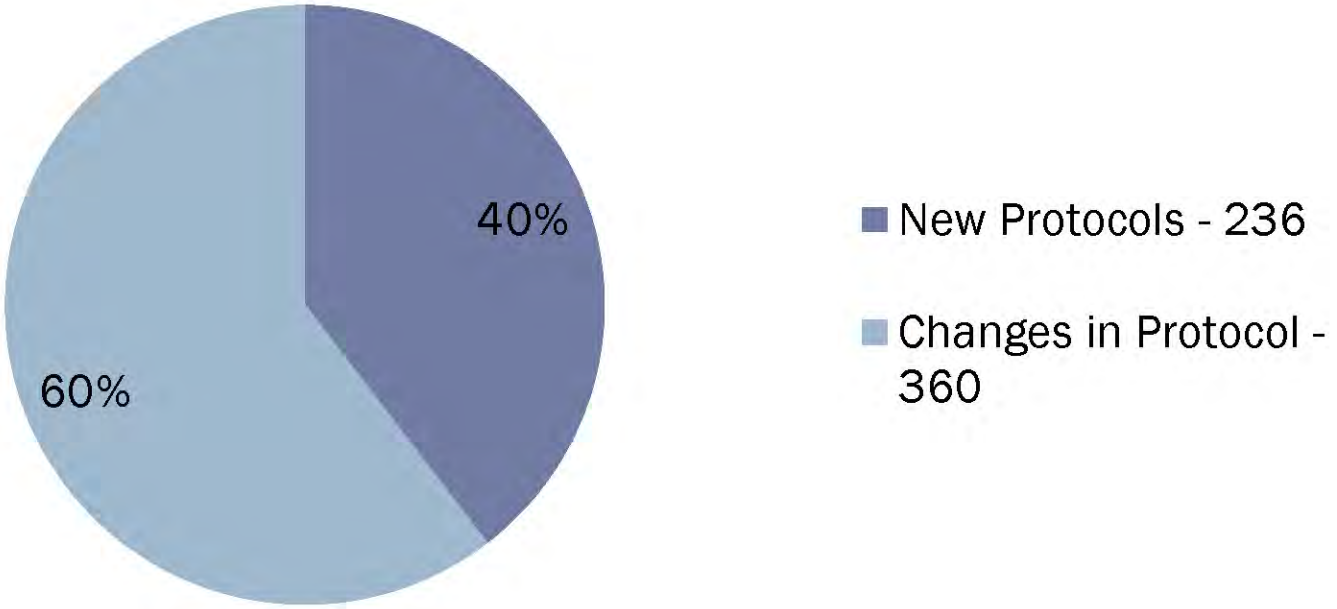
1608-34040A	[redacted]	Dog, Frog (Xenopus), Gerbil, Goat, Guinea Pig, Hamster, Mice, Nonhuman Primate (Macaques), Pig (Biomedical), Rabbit, Rat, Sheep (Biomedical), Turkey, **ALL SPECIES DESIGNATION**, Cow (Biomedical), Chinchilla, Ferret, Cat	SOCIAL HOUSING	see protocol for details
1608-34040A	[redacted]	Dog, Frog (Xenopus), Gerbil, Goat, Guinea Pig, Hamster, Mice, Nonhuman Primate (Macaques), Pig (Biomedical), Rabbit, Rat, Sheep (Biomedical), Turkey, **ALL SPECIES DESIGNATION**, Cow (Biomedical), Chinchilla, Ferret, Cat	EUTHANASIA METHOD	Euthasol® 0.22 ml/kg IV (~86 mg/kg pentobarbital)
1607-33994A	Schleiss, Mark	Guinea Pig	SOCIAL HOUSING	see protocol for details

1607-33989A	Robinson, Jerid	Mice, Mice	Social Housing	The mice must be individually housed for the entire study while they have the telemetry transmitter implanted. The reason is because each transmitter communicates to the receiver the mouse cage is in. This is to detect their individual arterial pressure and heart rate. The technology of the transmitters for now does not allow them to be housed in groups because the
1606-33864A	Cao, Ruifeng	Mice	EUTHANASIA METHOD	We need to look at protein kinase activation in the brain after acute stimulation, such as a light pulse. Due to the transient nature of the protein kinase activities, animals must be euthanized immediately and brain tissue must be harvested and processed within minutes after light exposure. The time it takes to sedate the animals are too long for
1605-33816A	Mand, Sandy	Fish (Other)	SANITATION FREQUENCY	We use either under-gravel filters where the sediment waste on the gravel is siphoned out monthly or above-tank charcoal filter systems (especially for the marine tanks) where the charcoal cartridges are changed based on manufacturer's recommendations. We also have protein skimmers for the marine tanks. We also have an Z-Hab system in Biosci 115 which includes
1605-33816A	Mand, Sandy	Fish (Other)	SOCIAL HOUSING	see protocol for details
1605-33678A	[redacted]	Nonhuman Primate (Macaques)	PRIMARY ENCLOSURE SIZE/SPACE	see protocol for details
1605-33678A	[redacted]	Nonhuman Primate (Macaques)	SANITATION FREQUENCY	see protocol for details
1605-33678A	[redacted]	Nonhuman Primate (Macaques)	MULTIPLE SURGERY	see protocol for details

IACUC RESEARCH SUBMISSIONS

APRIL 1, 2019 – SEPTEMBER 30, 2019

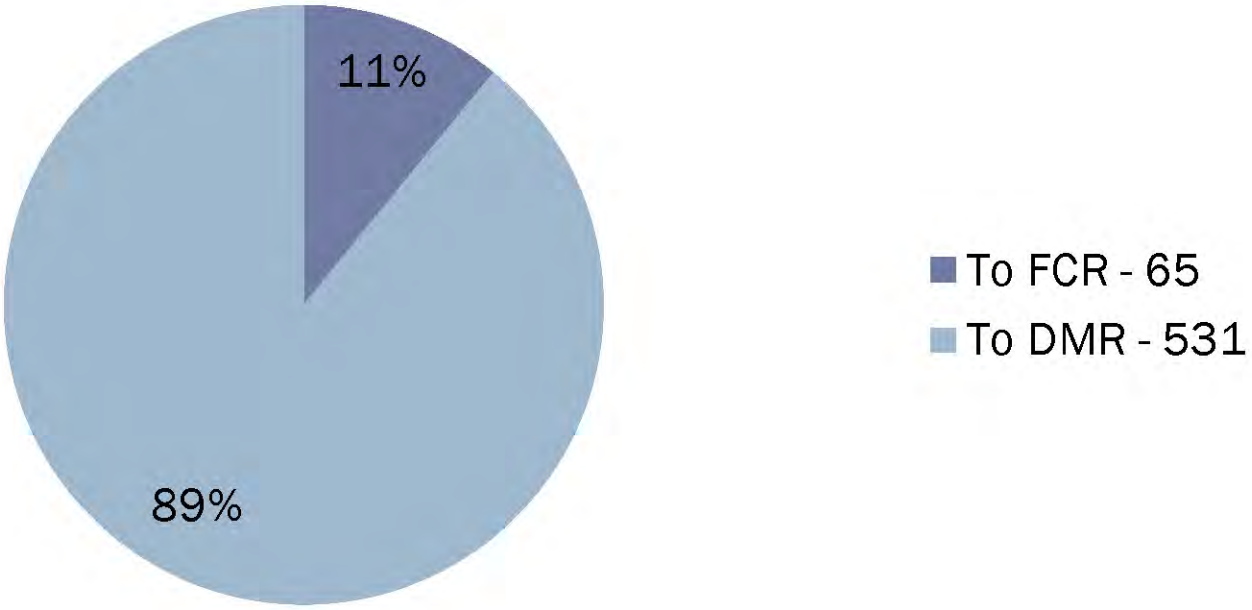
TOTAL SUBMISSIONS: 596



TOTAL SUBMISSIONS – 596

BY SUBMISSION TYPE

APRIL 1 – SEPTEMBER 30, 2019

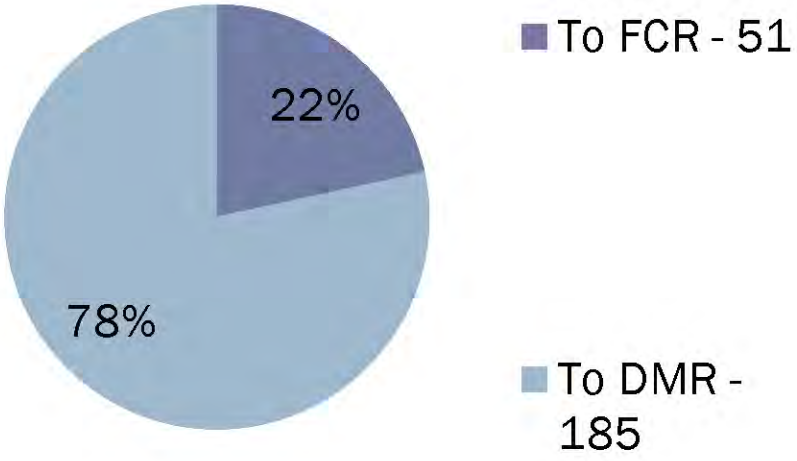


TOTAL SUBMISSIONS – 596

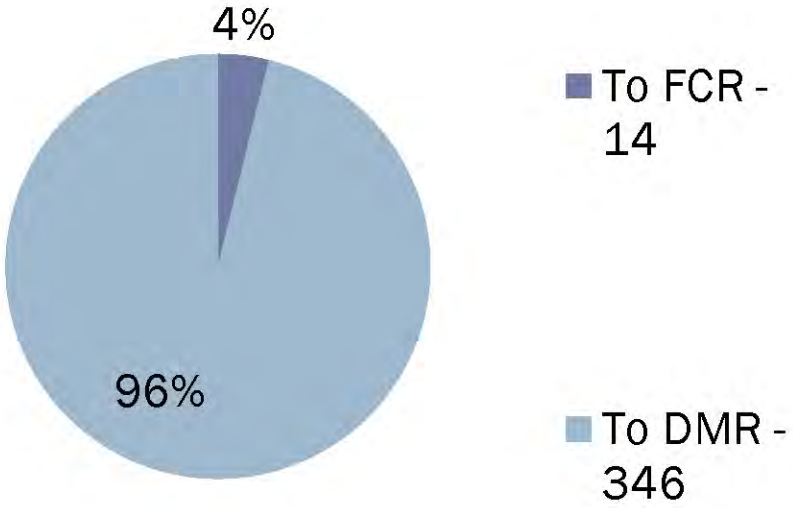
BY SUBMISSION TYPE

APRIL 1 – SEPTEMBER 30, 2019

NEW PROTOCOLS – 236



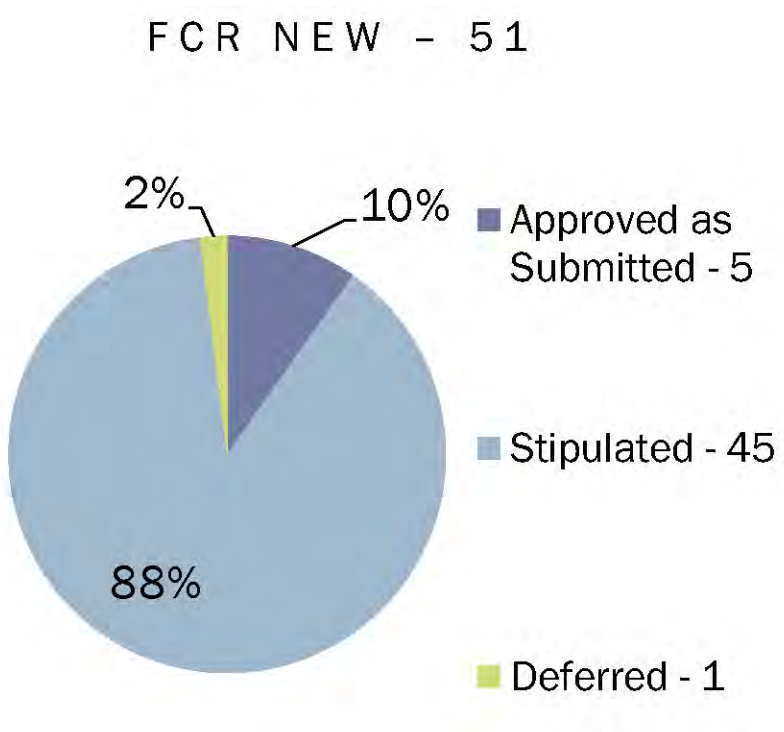
AMENDMENTS – 360

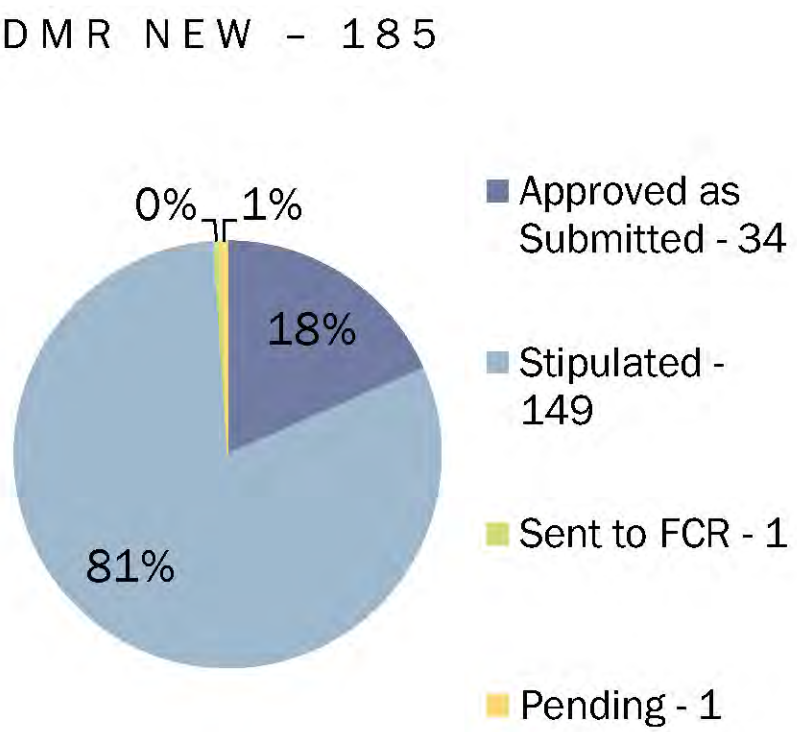


TOTAL SUBMISSIONS – 596

BY SUBMISSION TYPE

APRIL 1 – SEPTEMBER 30, 2019

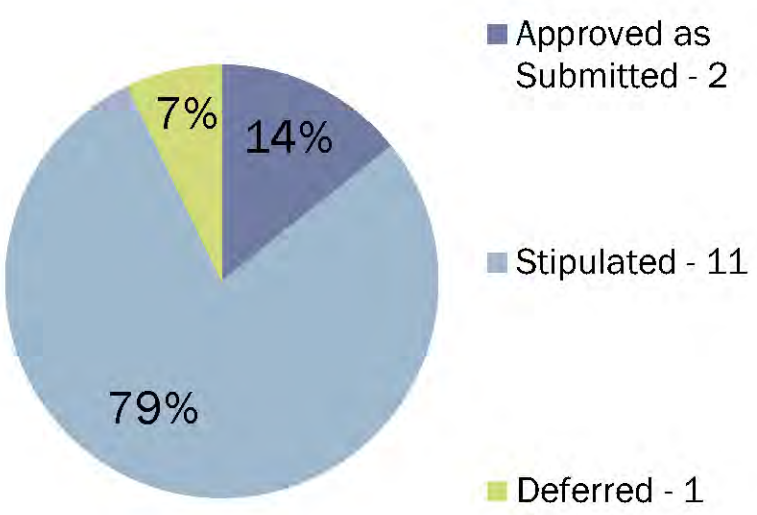




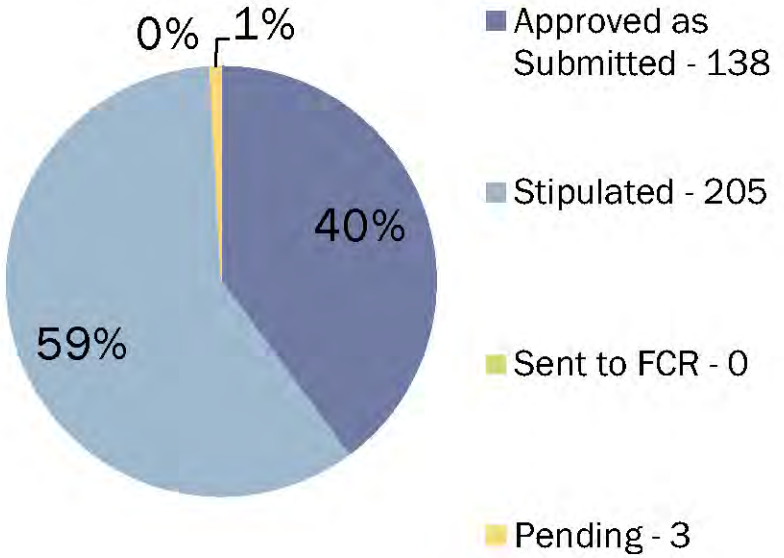
REVIEW OUTCOMES- NEW STUDIES

APRIL 1 – SEPTEMBER 30, 2019

FCR AMENDMENTS – 14

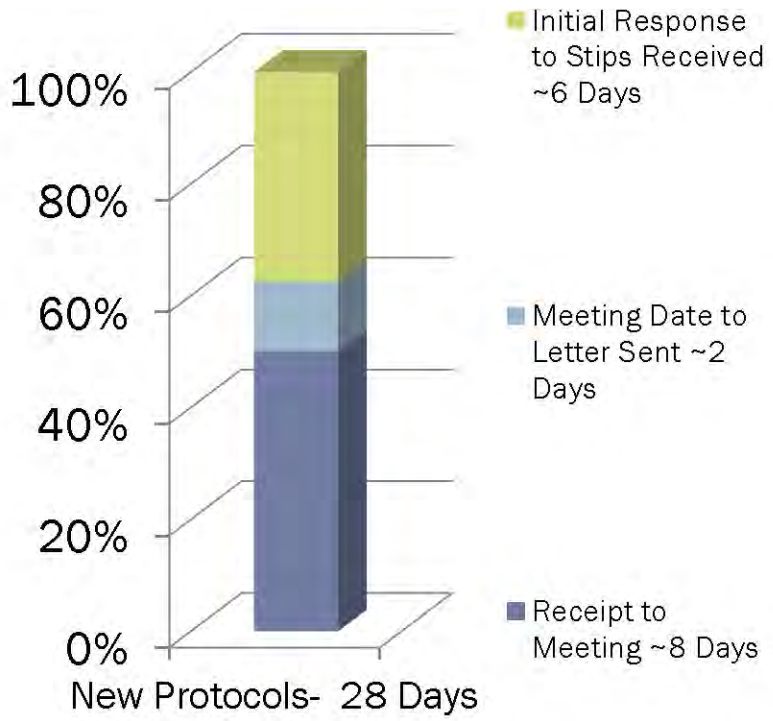


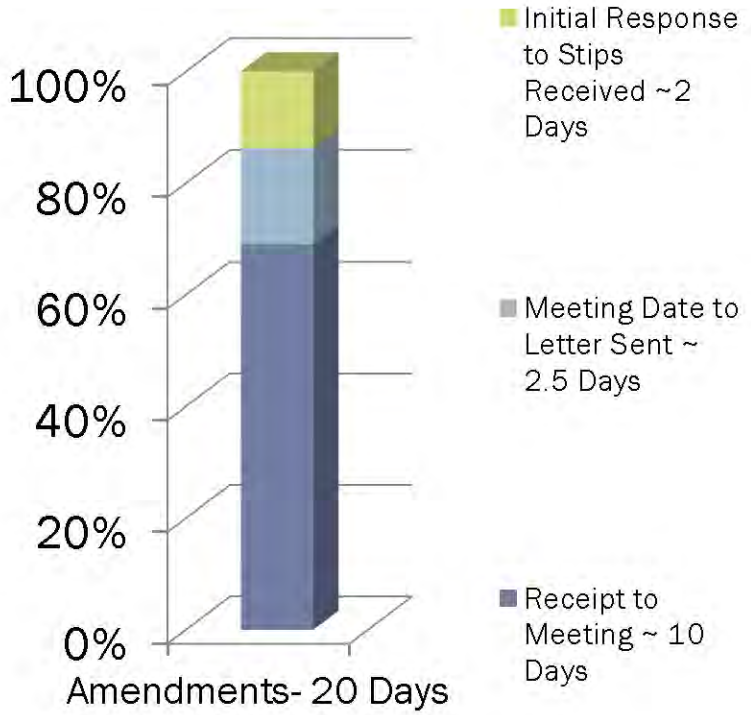
DMR AMENDMENTS -346



REVIEW OUTCOMES - AMENDMENTS

APRIL 1 – SEPTEMBER 30, 2019

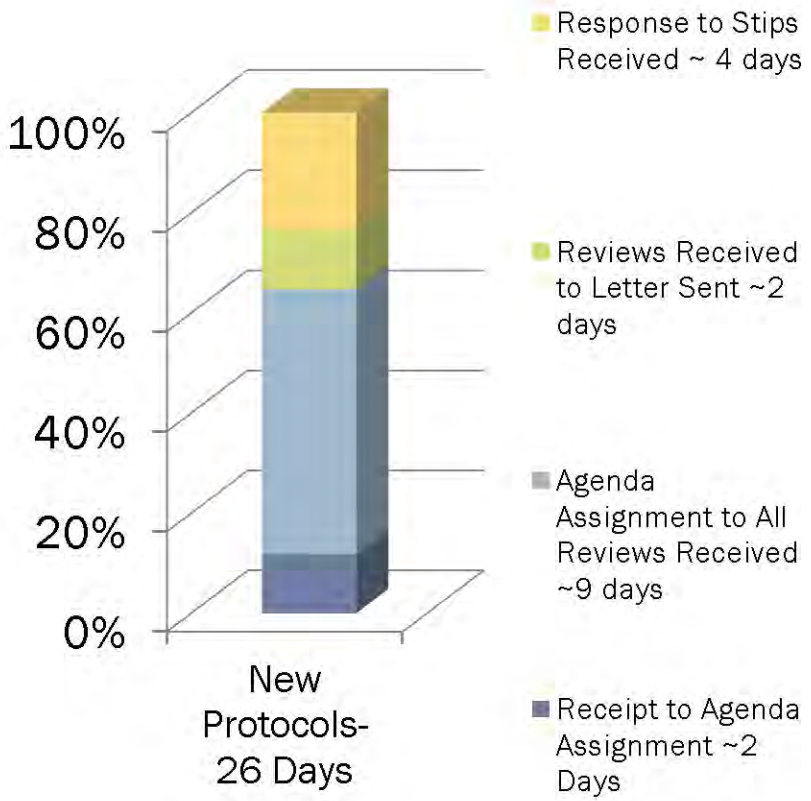


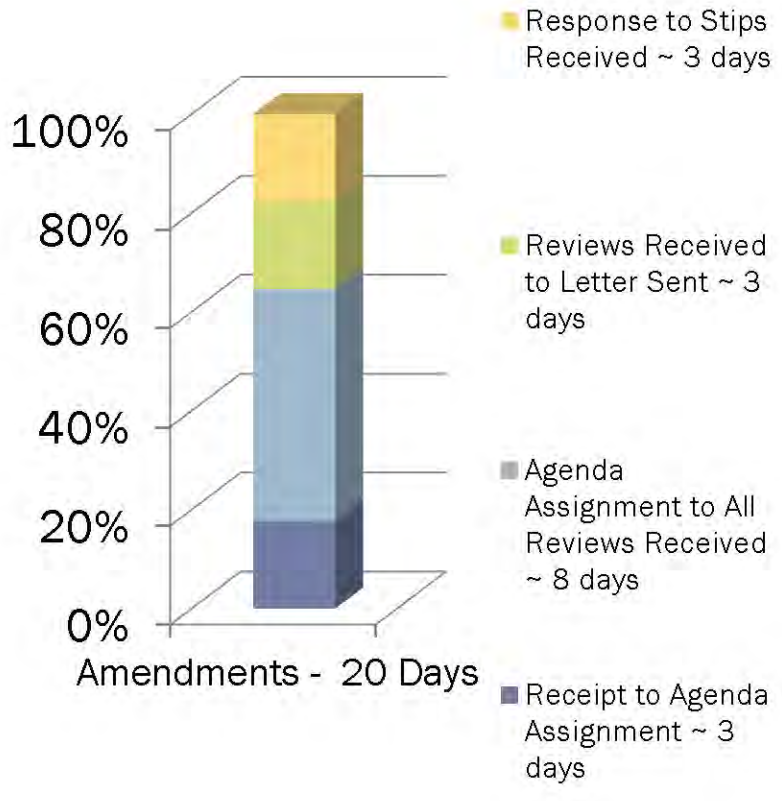


FCR SUBMISSIONS

MEDIAN APPROVAL TIMES

OCTOBER 1, 2018 – MARCH 31, 2019





DMR SUBMISSIONS

MEDIAN APPROVAL TIMES

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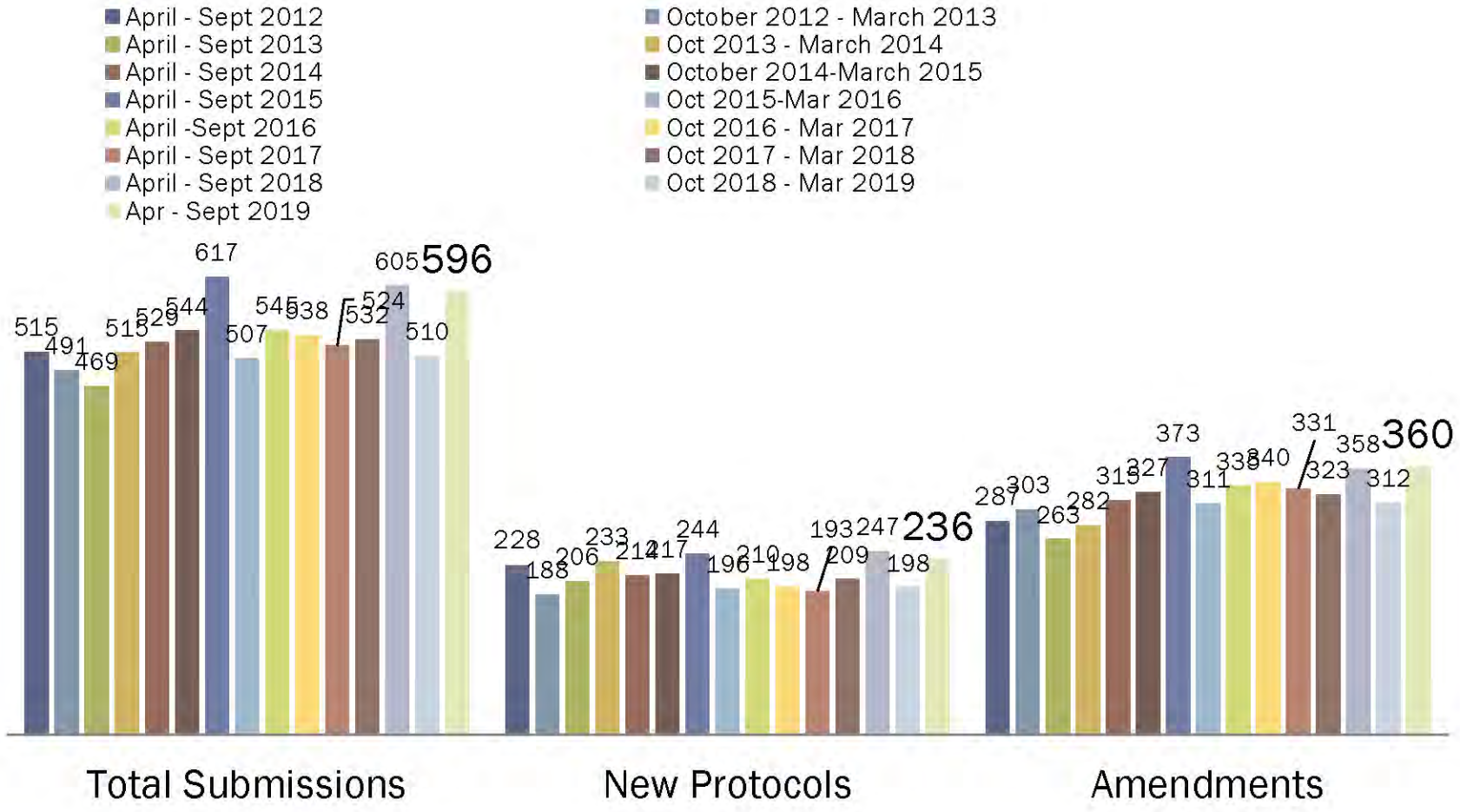
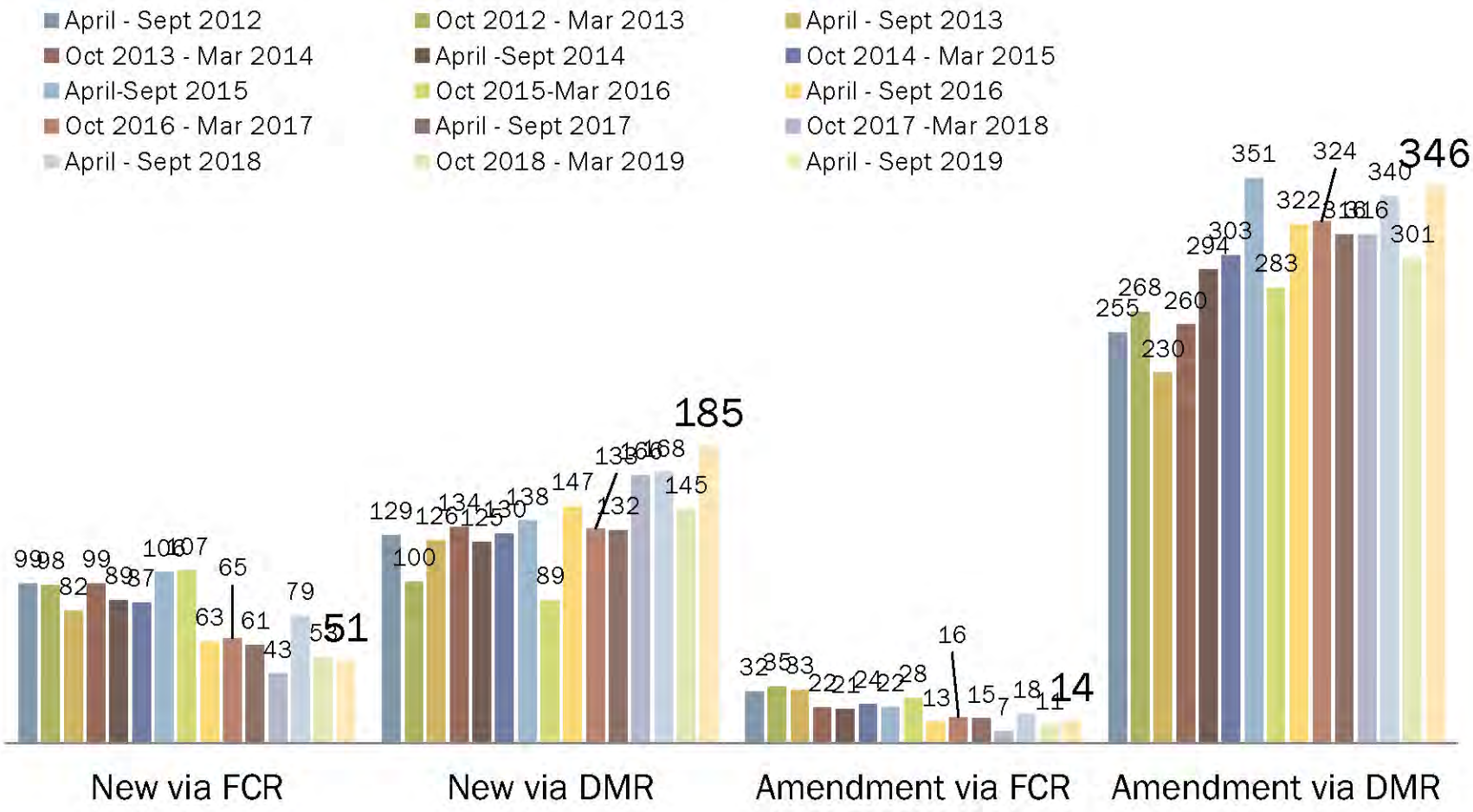


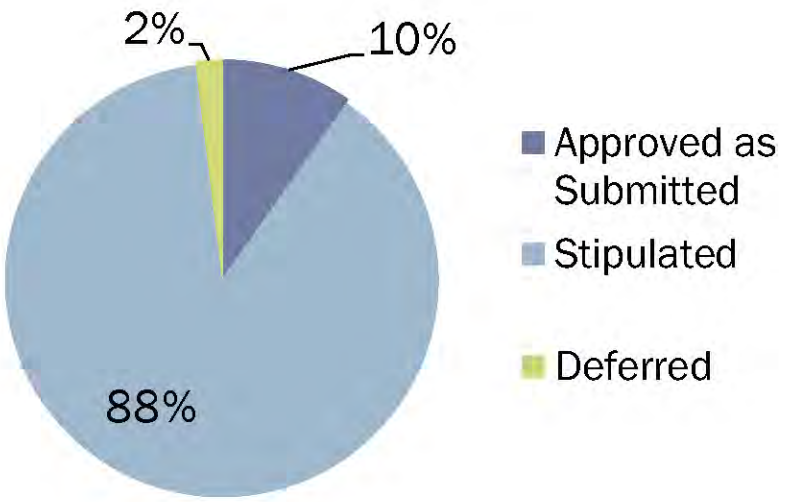
SUBMISSION COMPARISON – TOTALS BY TYPE

APRIL 2012 – SEPTEMBER 2019

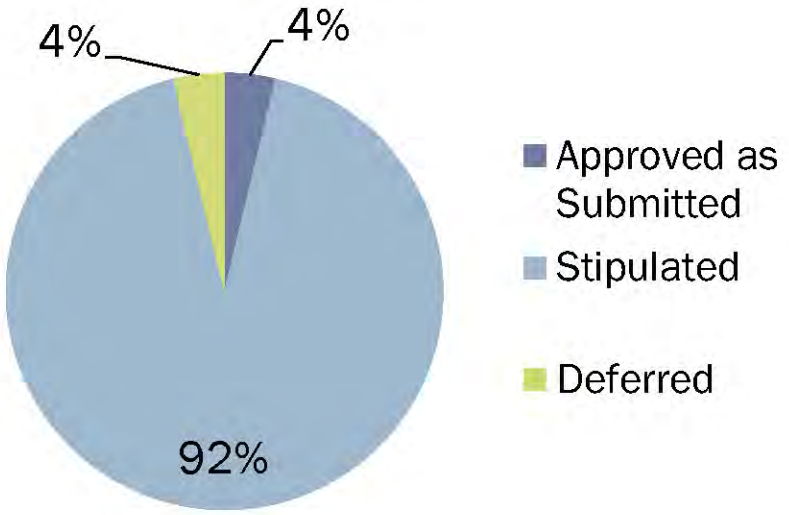


SUBMISSION COMPARISON –
TOTALS BY TYPE AND REVIEW PROCESS
APRIL 2012 – SEPTEMBER 2019

APRIL 2019 – SEPTEMBER 2019



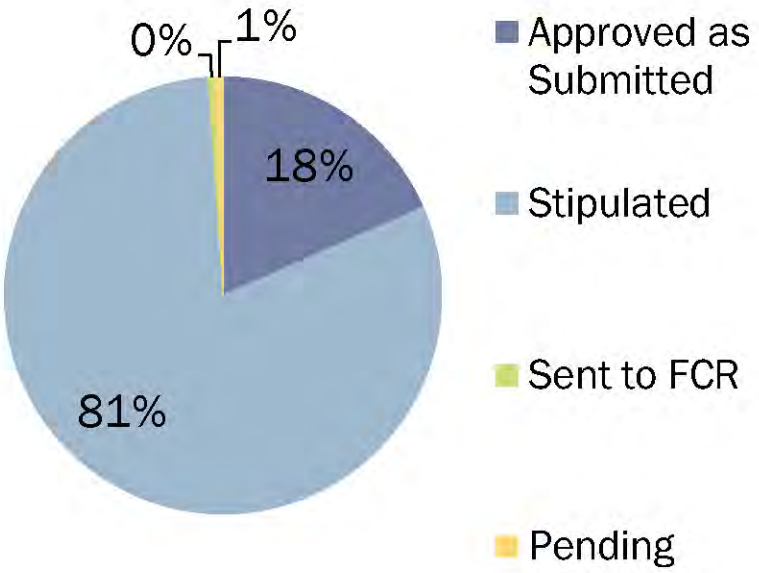
OCTOBER 2018 – MARCH 2019



SUBMISSION COMPARISONS

REVIEW OUTCOMES – NEW PROTOCOLS VIA FCR

APRIL 2019 – SEPTEMBER 2019



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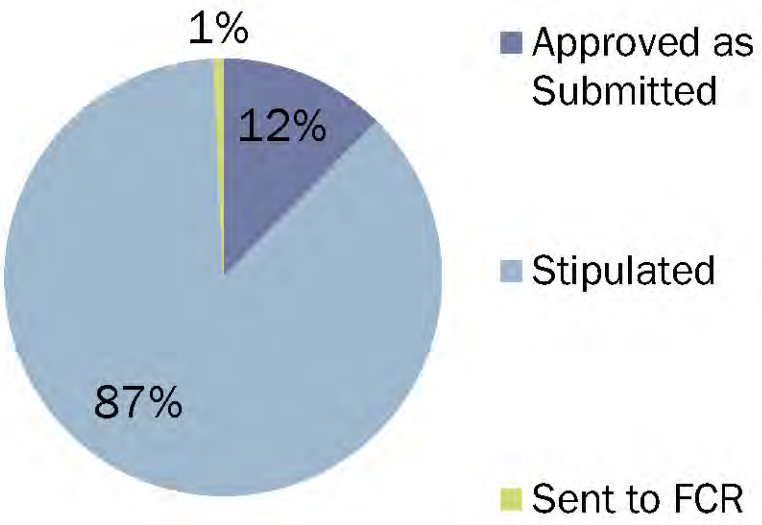
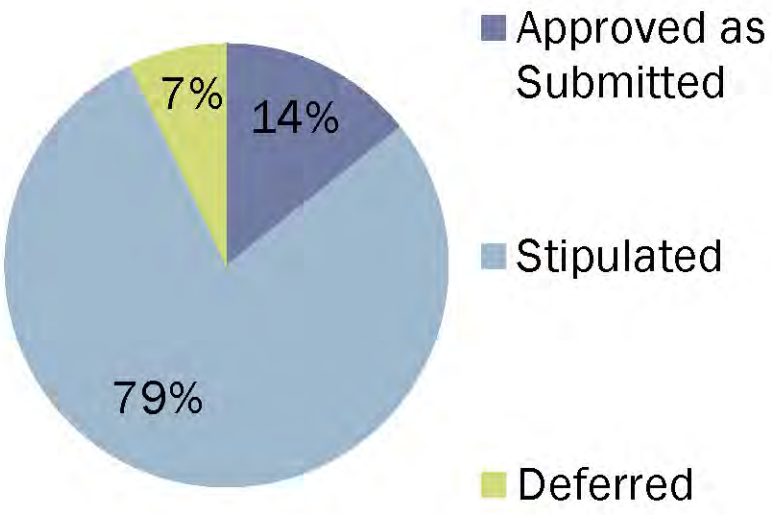


SUBMISSION COMPARISONS

REVIEW OUTCOMES – NEW PROTOCOLS VIA DMR

APRIL 2019 – SEPTEMBER 2019



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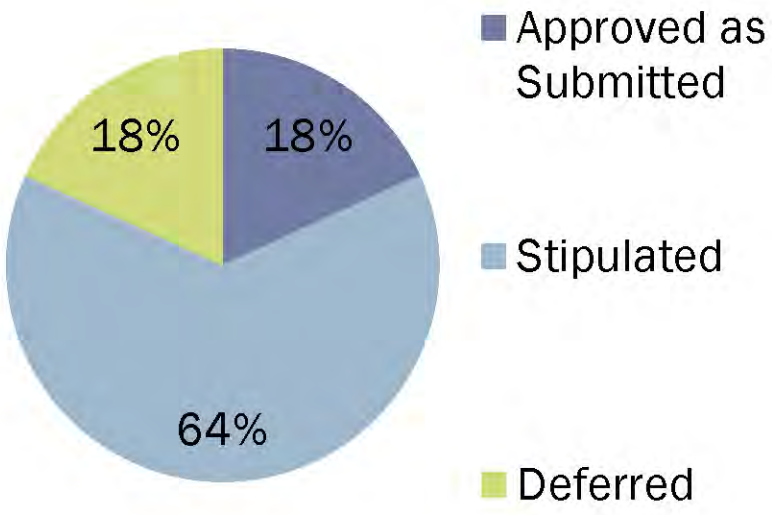
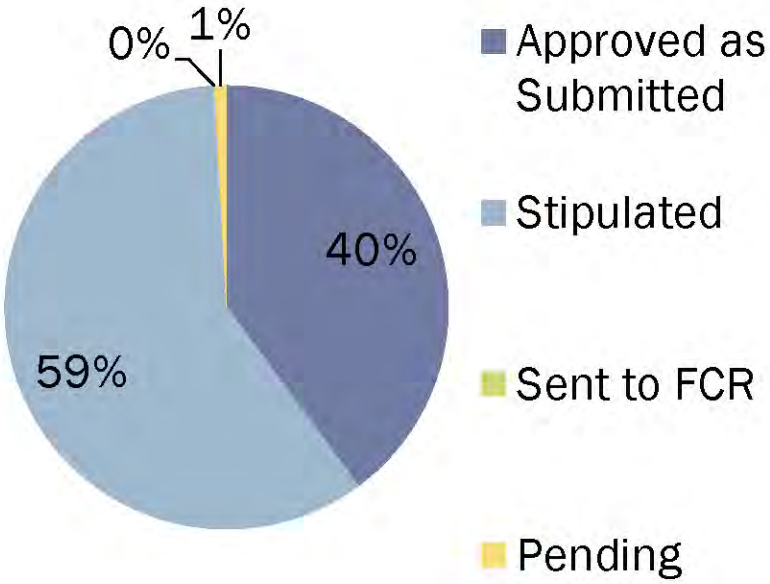


SUBMISSION COMPARISONS

REVIEW OUTCOMES – AMENDMENTS VIA FCR

APRIL 2019 – SEPTEMBER 2019



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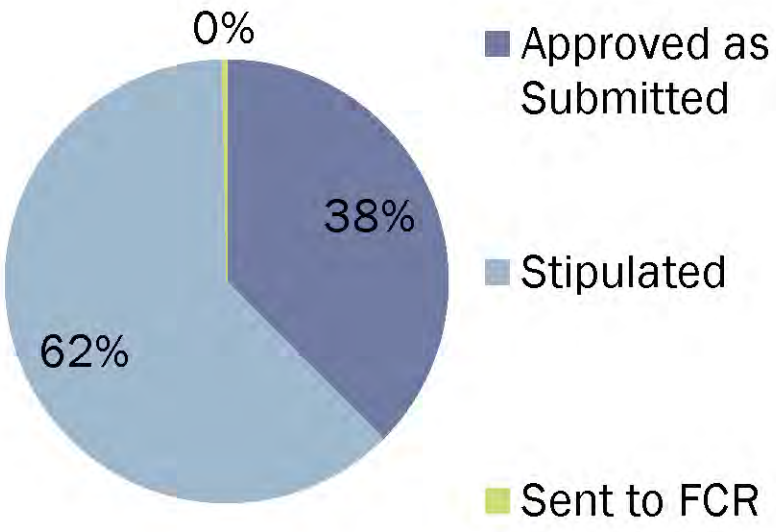
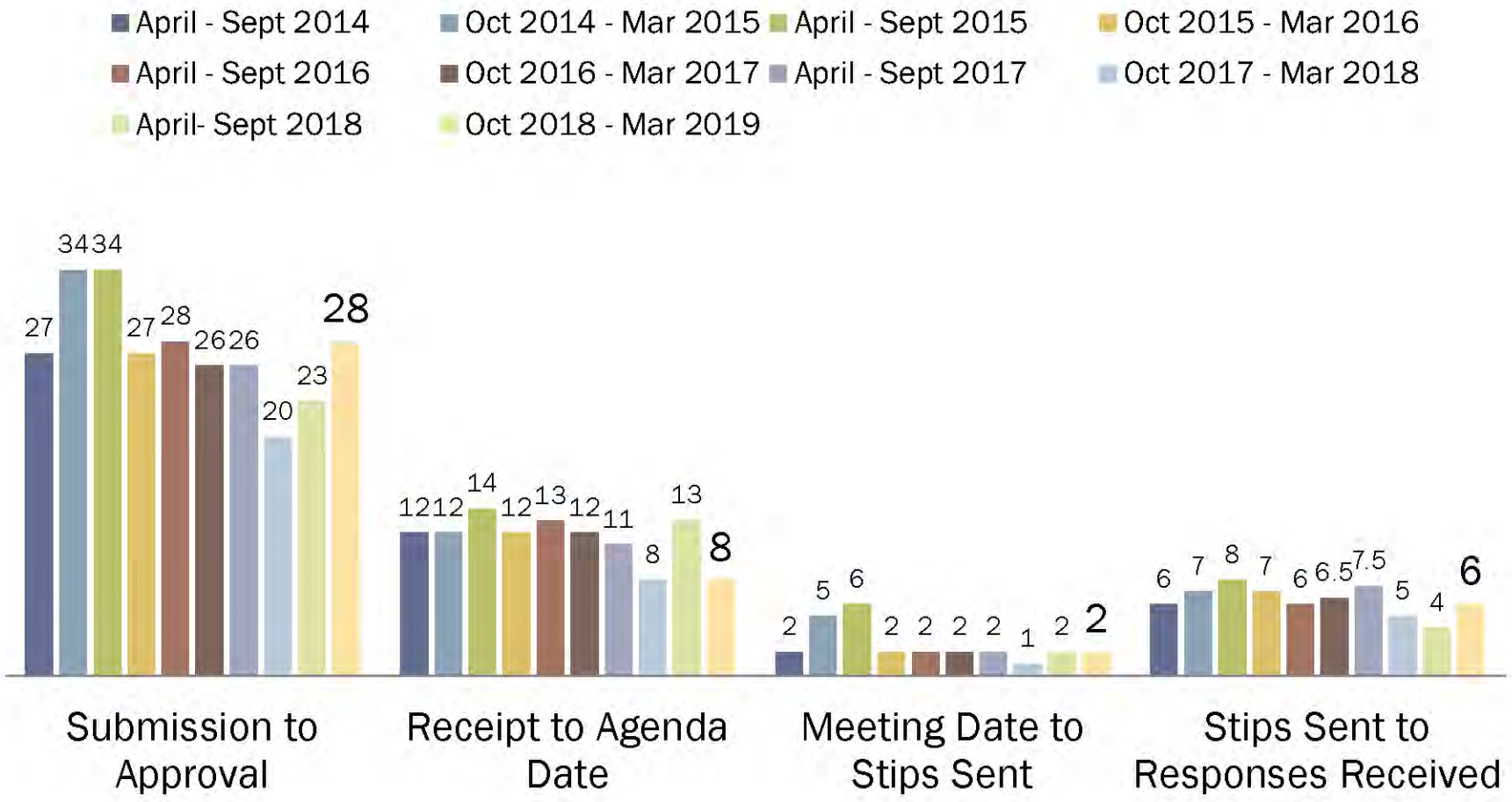


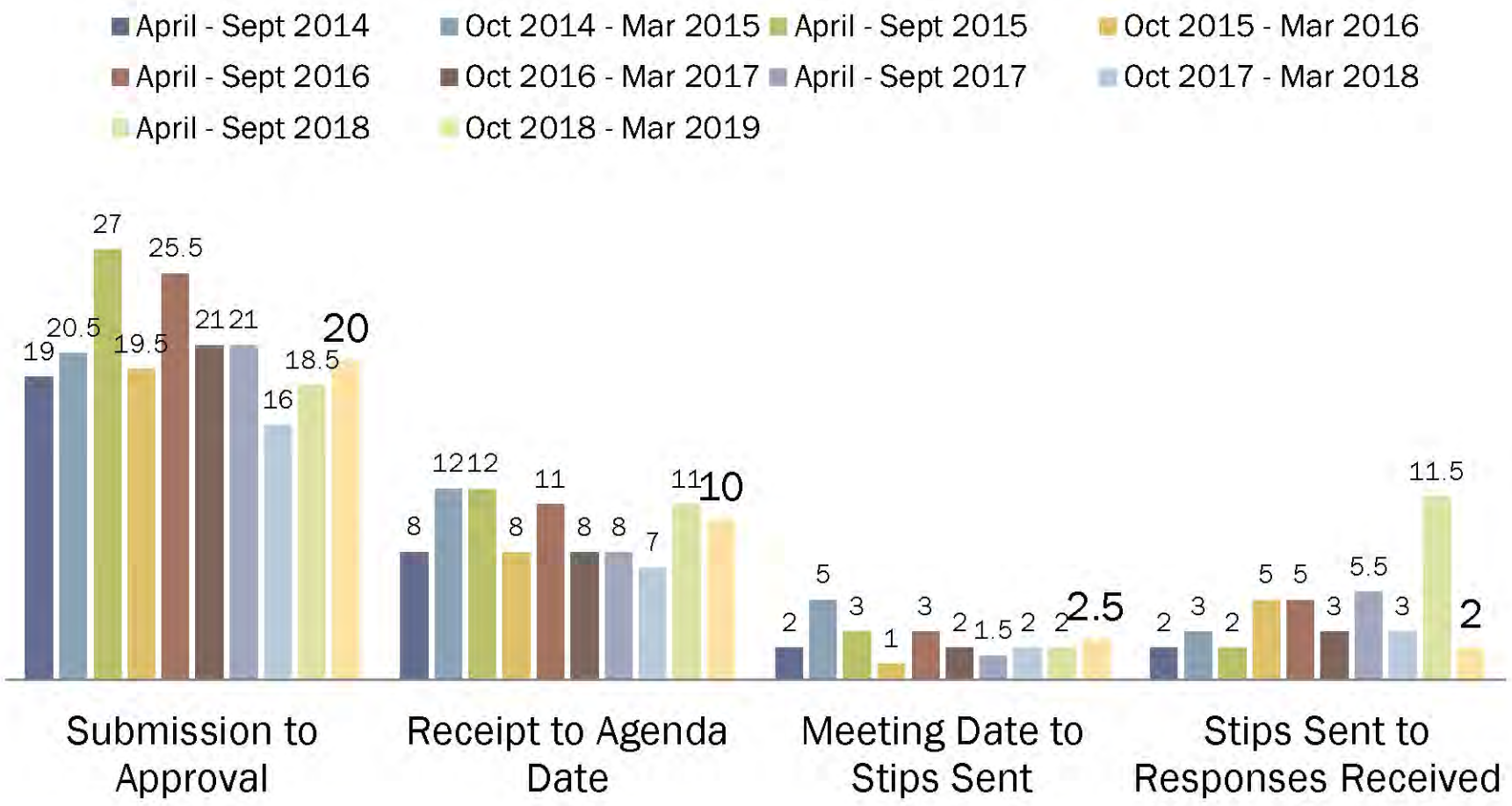
SUBMISSION COMPARISONS

REVIEW OUTCOMES – AMENDMENTS VIA DMR



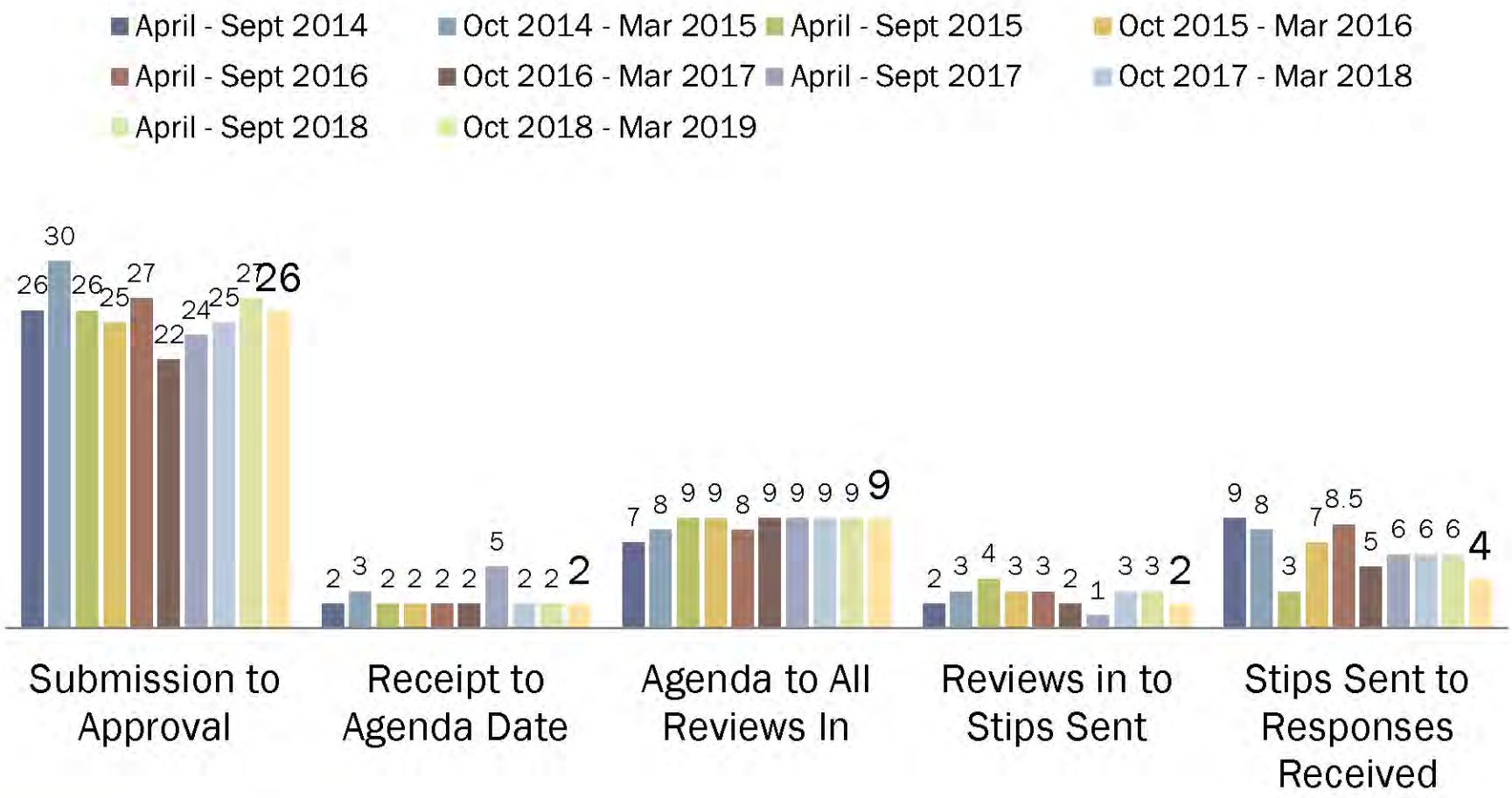
TIME COMPARISON – FCR NEW PROTOCOLS

APRIL 2014 – MARCH 2019



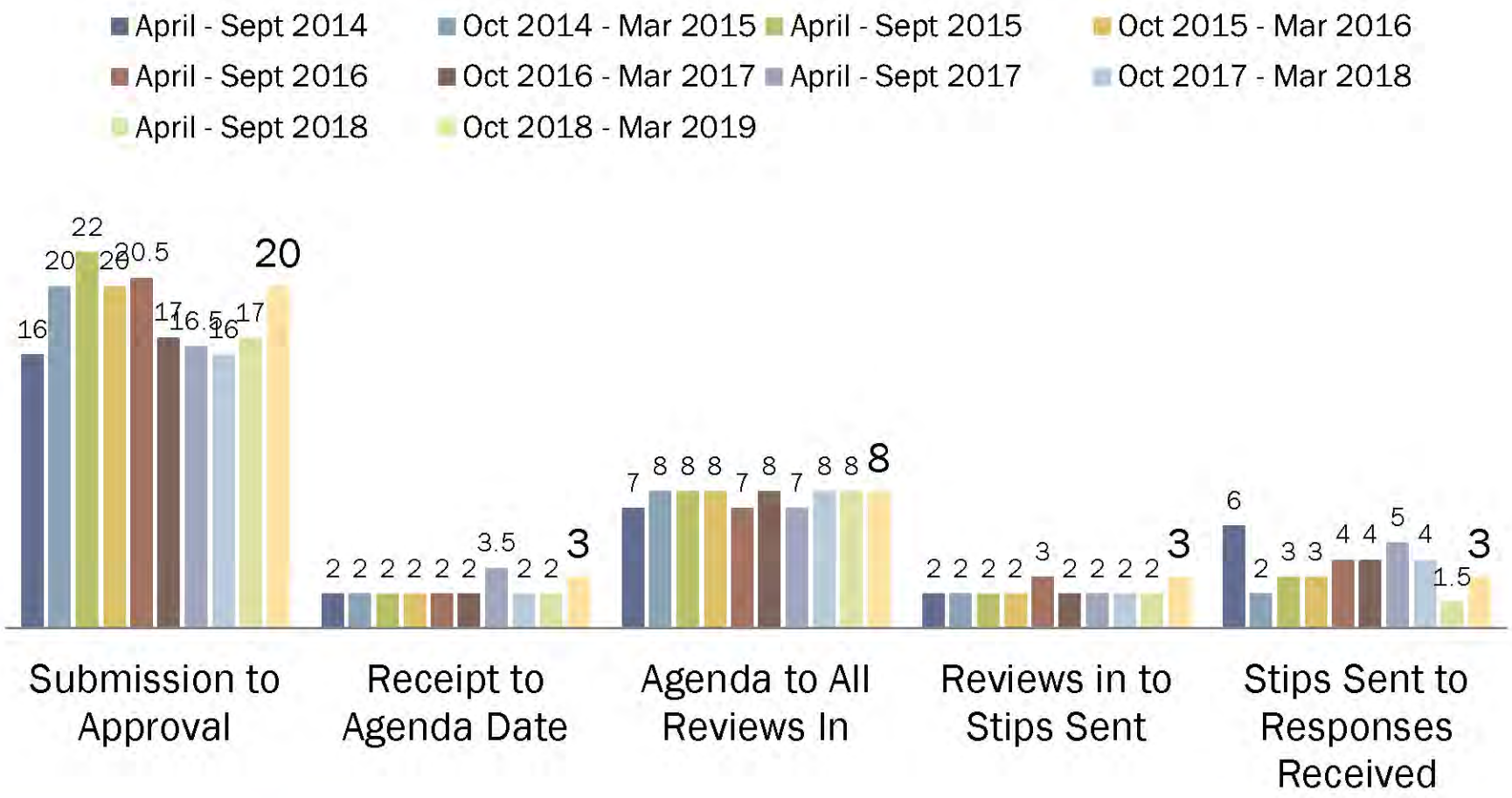
TIME COMPARISON – FCR AMENDMENTS

APRIL 2014 – MARCH 2019



TIME COMPARISON – DMR NEW PROTOCOLS

APRIL 2014 – MARCH 2019



TIME COMPARISON – DMR AMENDMENTS

APRIL 2014 – MARCH 2019

EXPIRED/SUSPENDED, EXTERNAL ANIMAL HOUSING, AND INCOMING ANIMAL TEMPORARY PROTOCOLS
4/1/2019 – 9/30/2019

Holding Protocol
Christine Sivula, 112600
1807-36197A
4-1-2019 - 9-30-2019

PI	Protocol ID	Species	Number of Animals	Expiration Date	New Protocol ID	Transfer Approval Date
Finger, Erik	1604-33640A	Mouse	22	5/12/2019	1905-37028A	5/31/2019
Asakura, Atsushi	1604-33660A	Mouse	132	5/23/2019	1903A36906	8/19/2019
Marahrens, York	1605-33812A	Mouse	115	9/12/2019	1809-36337A	9/17/2019 Amendment
*Lund, Troy	1605933717A	Mouse	2	6/16/2019	None	None

*Dr. Troy Lund had one box of mice on protocol 1605A33717 (expired on 6/16/2019) that could not be moved to protocol 1809A36360 (where his other boxes of mice were transferred to on 6/16/2019) due to experiments that had been performed on these mice. That box of mice was outed on 9/18/2019.

External Animal Housing Protocol
Angela Craig – transferred to Mark Suckow – transferred to Christine Sivula
1808-36233A
4-1-19 - 9-30`-19

PI	Company Name	Protocol ID	Specie	Number of Animals
*Sivula, Christine	Boston Sci	1808-36233	Dog	0

* Formerly Mark Suckow.

Incoming Animal Temporary Protocol
Christine Sivula
1807-36151A
10-1-18 - 3-31-19

Incoming PI	Date of Arrival	Number of Animals Housed	Specie	New Protocol #
Junge, Harald	8/12, 8/13, 8/15	425	Mouse	1907A37213

Andrew Grande:

6/20/19:

- It was noted during review of your surgical records for protocol 1807-36097A, that mice underwent a second stereotaxic surgery for intracranial virus injections 7 days after they had undergone the Controlled Cortical Impact surgery. Although the protocol states that mice will receive intracranial virus injections, it does not clearly state that this procedure is performed as a surgical intervention as there is no surgical procedure described in the protocol for this secondary surgery and the Controlled Cortical Impact Surgery states that there are no multiple surgeries. Please include this information in the protocol by first updating the Controlled Cortical Impact surgical procedure to indicate that these animals will undergo multiple survival surgeries (there is a checkbox under the "surgery" heading for this purpose) and also adding the second AAV administration surgical procedure to the protocol.

12/18/18 and 12/20/18:

- It was noted during the inspection that Andrew Crane is performing surgeries under protocol 1601-33310A; however, he is not listed on this protocol. Please add Andrew to this protocol. Also, please make sure he is listed as a surgeon on this study and provide his training and relative experience for review and approval by the IACUC.

- It was noted during the inspection that a femoral vein cutdown procedure is performed 48 hours after the controlled cortical impact surgery to facilitate the IV injection of cells, as approved; however, no analgesic was administered with this surgical procedure. The protocol specifies that Buprenorphine-SR will be administered at least 3 hours prior to the surgery if used alone; or, it will be administered upon sedation of the animal just prior to surgery if used in conjunction with standard formulation buprenorphine. Please confirm that analgesics will be administered for this procedure as stated in the protocol. Additionally, you may want to discuss with your area veterinarian, Dr. Misha Dunbar, this analgesic regimen to ensure proper dosing. (**Please note that this is a repeat finding also noted on June 21, 2018 inspection report.**)

6/20/18:

- It was noted during the inspection that a femoral vein cutdown procedure is performed 48 hours after the controlled cortical impact surgery to facilitate the IV injection of cells, as approved; however, no analgesic was administered with this surgical procedure. The

protocol specifies that Buprenorphine-SR will be administered at least 3 hours prior to the surgery if used alone; or, it will be administered upon sedation of the animal just prior to surgery if used in conjunction with standard formulation buprenorphine. Please confirm that analgesics will be administered for this procedure as stated in the protocol.

12/29/17:

- It was noted that two staff members working on your study are not listed as personnel on your protocol (Hui Xie and Wei Chen Lu). Please have them discontinue working on your study until such time they are added to the protocol and have completed their ROHP requirements, if applicable.
- In review of surgical records for this study, it was noted that on 10/16/17, rats (12) underwent traumatic brain injury ranging from mild to severe. The severe brain injury model is not outlined in your protocol. Please discontinue this model until you submit an amendment to your protocol. Additionally, staff indicated that this initial set of surgeries was to help set up TBI parameters as they are not well established for your study, hence no cell therapy was done on these animals only a range of injury models. Please also add a group of animals to be used for initial system set up if needed.

5/31/16:

- Protocol 1505-32629A states that "animals may maximally undergo a weekly MRI procedure to evaluate the progression of aneurysm formation and then after treatment to assess treatment effect" but according to animal records, dogs GAM1 and GAM2 received two MRI's in the given week (GAM1 received an MRI on 1/13/16 and 1/14/16 and GAM2 received an MRI on 2/10/16 and 2/11/16 as well as on 2/22/16 and 2/23/16.. Please update your protocol to reflect that more than one study MRI may be conducted in a given week. Additionally, a provision in the protocol should be added that if adverse clinical signs are seen after aneurysm induction that additional MRIs may be warranted.

11/16/15:

- It was noted that some mice under protocol 1501-32253A were euthanized using Isoflurane anesthesia with subsequent perfusion. According to your study, only CO2, cervical dislocation or ketamine overdose and decapitation are approved methods. Please discontinue the Isoflurane anesthesia and perfusion euthanasia procedure until an amendment is submitted to your eProtocol submission and you are approved in writing by the IACUC.

John Bischof:

6/24/19:

- Mice undergoing thermal therapy procedures did not receive post procedure analgesics as indicated in the protocol. Appendix F for thermal therapy attached to your protocol states that buprenorphine will be given on the day of surgery, twice on the next day and once more the following day. The Health and Monitoring section of your protocol states that buprenorphine will be given at the time of surgery and ibuprofen in the drinking water for 7 days following thermal therapies. Please consult with your RAR veterinarian to assess appropriate post-procedure analgesia (or none) for the various thermal therapies on the protocol and submit an amendment with any changes to analgesia. This is a repeat finding also noted on the report sent 6/22/2018. In response to this finding last year it was stated that an amendment would be submitted and approved prior to resuming thermal therapy procedures.

6/22/18:

- It was noted that xylazine that expired in May 2018 was used for ketamine/xylazine anesthesia of mice for thermal therapy in June 2018. Expired anesthetics, analgesics and euthanasia agents may not be used in research animals. Please replace the xylazine prior to your next anesthetic procedure.
- Mice undergoing thermal therapy procedures did not receive post-surgical analgesics as indicated in the protocol. The appendix F for thermal therapy attached to your protocol states that buprenorphine will be given on the day of surgery, twice on the next day and once more the following day. The Health and Monitoring section of your protocol states that buprenorphine will be given at the time of surgery and ibuprofen in the drinking water for 7 days following thermal therapies. Please consult with your RAR veterinarian to assess post-procedure analgesia for the various thermal therapies on the protocol and submit an amendment with any changes to analgesia.

5/4/18
Self-Report:

- This is in reference to pending protocol #1804-35844A submitted by PI Dr John Bischof. We wanted to let the committee know that we had started housing two larval zebrafish prior to the approval of this protocol. The aim of our project is to develop a long term cryopreservation protocol for early stage zebrafish embryos. Most of the cryopreserved and rewarmed embryos don't make it past day 3 (vertebrate status). However, in past month we were able to get two embryos to develop to Day 5. Since this is a rare occurrence (and big breakthrough) for us, we immediately wanted to house these fish in the zebrafish core to see if their long-term development would be affected by our treatments. We were thinking that Zebrafish Core's fish room protocol would cover it. But after discussion with folks from IACUC and Dr Mark Masino, we were advised to submit a new protocol. Following his suggestion, we submitted an IACUC protocol last week and sincerely hope that we can avoid any breach of animal welfare policies in the future. We currently have one adult fish and one larval fish in separate tanks, which are considered to be IACUC approved housing. Please let us know if we can provide any other information regarding our protocols since we would like to completely transparent in this aspect.

6/16/17:

- It was noted during the inspection that tumor cell injections are sometimes performed by subcutaneous injection without the use of anesthesia; however, the approved protocol states that tumor cells will be injected under ketamine/xylazine anesthesia. Please reinstate the use of ketamine/xylazine injectable anesthesia for this procedure. If you would like to perform this procedure without anesthesia, please submit an amendment through eProtocol requesting this change.

1/12/17:

- It was noted that expired ketamine (exp. 6/2016) and expired xylazine (exp. 11/2016) were used to anesthetize mice for non-invasive procedures through December 2016. Expired anesthetics, analgesics and euthanasia agents may not be used in research animals. Please replace the ketamine and xylazine prior to your next anesthetic procedure.

Clark Chen:

7/11/19 and 7/16/19:

- It was noted during the inspection that mice under protocol 1802-35597A are housed in [redacted] for 72 hours post-surgery; however, this protocol is not currently approved for housing in this space. In review of this protocol, it is stated that animals will be housed in this space overnight once surgery is complete and returned to the animal facility in the morning. If you would like to continue housing animals in this space for longer than 24 hours, please submit an amendment to the protocol to include this IMHA [redacted] for housing mice under this study. Until such time that an amendment is approved, animals must not be housed in this space longer than 24 hours.

1/18/19:

· In review of your surgical records, 5 mice on protocol 1707-34937A and 58 mice on protocol 1812-36595A underwent intracranial injection surgery from 10/26/18 to 1/16/19 and did not receive adequate post-operative analgesia. Although bupivacaine was given as indicated in the protocols, the first injectable dose of buprenorphine was not given until 24 hours after surgery. Analgesics must be given in accordance with the protocol and to cover the full 72 hour post-operative period. Please confirm that you will give buprenorphine on the day of surgery and for 72 hours following.
· Although diluted controlled substances are stored in a locked safe, this safe is not yet attached to the wall and therefore does not fully secure these drugs. Please move all controlled substances to the existing wall safe until the second safe has been secured by facilities management.