Minutes: IACUC Meeting, 9/18/2020

Meeting time:
1:02 PM - 2:36 PM

Members Present: Chair, AV, 007, 020, 021, 028, 030, 031, 034
Members Absent: 037
Guests: 027, 036
Comments: Member 034 arrived after the start of the meeting

Voting results are presented as follows: approve - withhold approval - abstain (e.g. 9-0-0). Any member with a conflict of interest is recused at the appropriate time and is not counted in the voting; however, the quorum is verified prior to all voting. "RM-DMR" and "RM-FCR" refer to the IACUC actions taken when substantive information is lacking from a protocol and the Committee requires a protocol response, clarification, or modification (RM) from the PI, which will be reviewed by designated members of the Committee (DMR), or by the full Committee at a convened meeting (FCR). The order that topics are presented in the minutes does not necessarily represent the order that they were presented at the meeting.

Topics

Announcements

Presenter | Chair

1. Schedule of upcoming meetings: October 16, 2020; November 13, 2020; December 11, 2020; January 15, 2021; February 19, 2021; March 19, 2021; April 16, 2021; May 21, 2021; June 11, 2021; September 17, 2021

2. Protocol [redacted] Investigation Report Update
During the June IACUC meeting, the IACUC tasked the Chair with ensuring that the procedures for the lab's genotyping assay included the use of a positive control fragment for their restriction endonuclease diagnostic assay. During a subsequent meeting with the lab PI and postdoc, it was agreed that the fragment did not necessarily need to be included with every genotyping assay, only for ones that return with ambiguous results (i.e., either the restriction digest failed or the animal is homozygous). The lab's genotyping procedures and research assistant training procedures have both been modified to include the use of the positive control.

3. Review and vote to approve minutes from the June 12, 2020 IACUC meeting.
Outcome: Approved 6-0-2

Presenter | [redacted]

4. Records requests
The IACUC Office received two unrelated records requests during the summer break. A request under the California Public Records Act was received from a UCSB student who requested copies of all protocol applications submitted during 2019. This student and an associate have since made similar requests to most of the other UC campuses. As such, the public records offices from each of the campuses and UCOP are now working to coordinate a consistent response from the campus IACUCs, as well as potentially narrow the scope of the request due to volume. Any records to be released will have sensitive information redacted beforehand. A request under the Freedom of Information Act was received from the New England Anti-Vivisection Society who requested a copy of the IACUC's AAALAC Program Description. The most recently approved version of the Program Description was redacted to remove all sensitive information prior to being released.

5. Protocol [redacted] PAM Update

The IACUC Coordinator provided an update to the IACUC for an ongoing Post-Approval Monitoring (PAM) process for protocol [redacted]. At the time of this protocol's three year review, the IACUC voted to continue the PAM requirement of one of the lab's postdocs emailing weekly updates to the IACUC Office regarding the water bottles used to provide medicated drinking water to experimental rats, and whether there had been issues with leaks or changing the water. There have been a few minor issues with the rat's drinking water over the past several months, but nothing serious enough that needs to be investigated by the IACUC.

Presenter | Chair, AV

6 Guidance for IACUC Members on Pain
The UCSB IACUC applies the use of USDA Pain Categories to all animals in its Animal Care and Use Program, regardless of species. The AV presented a proposed internal-use document for the IACUC that can be used to help keep its decisions on animal pain categorization consistent. The document includes topics that are frequently discussed during IACUC reviews where animals are experiencing pain or distress, such as whether an animal should be considered to be experiencing pain or distress during a procedure, even if no external markers are exhibited.

Presenter | 036

7 Discussion on Adoption of [redacted] Animals
The AV, along with University Administration, have been working to get the (approximately) 10 reptiles, of varying species, adopted from a [redacted] satellite facility. Ideally, the PI who originally procured or collected the animals would adopt them. However, whether this is possible depends on the restrictions and conditions of any applicable permits. If the PI is unable to adopt the animals, other candidates who may be willing and able to adopt will be found. The IACUC supports the adoption of these animals.

8 Discussion of surgeon supervision and training via Zoom
Currently there is only one PI that is conducting surgical training via Zoom. The primary reason for not conducting the training in-person with social distancing is that N-95 masks have been, and likely will continue to be, short in supply. The PI reported that there were no issues during the training surgeries, that a surgically proficient person was on campus in case they were needed, and the surgeon was instructed to euthanize the animal if there are any issues with Zoom that will impact their instruction (e.g., loss of internet connectivity).

IACUC Policy

Presenter | Committee

1 IACUC Guideline Provision of Adequate Veterinary Care and Reporting Unanticipated Protocol Complications Modification (Adding guidance on the need for a Veterinarian-Client-Patient relationship to provide veterinary care for an animal); Outcome: Approved by DMR
Reviewers: Chair, AV

2 IACUC Procedure Training Requirements for Protocol Personnel Modification (Adding provision for direct supervision via live video feed and personnel conducting post-operative care must attend the Rodent Surgery Seminar); Outcome: Approved by DMR
Reviewers: Chair, AV

3 IACUC Guideline Minimum Requirements for Personal Protective Equipment When Working With Research Animals Modification (Adding provision that additional PPE should be used when conducting in-person training during the COVID-19 pandemic); Outcome: Approved by DMR
Reviewers: Chair, AV

IACUC Guideline Animal Procurement, Transportation, Quarantine and Preventative Medicine Modification

4 (Adding section on animal housing); Outcome: Approved by DMR
Reviewers: Chair, AV

5 IACUC Guideline Who Qualifies To Be A PI Modification (Including a definition of PIs of Animal Activities); Outcome: Approved by DMR
Reviewers: Chair, AV

IACUC Member Continuing Education

Presenter | [redacted]

1 Lab Animal Magazine - Vol. 49, Issue 8; 211-213 (2020) Protocol Review Column; Dr. Jerald Silverman, Column Coordinator
Algae in abundance: au natural, or a violation of Xenopus *husbandry standards*
The article was made available to the Committee and discussed during the meeting.

Protocol Review

Presenter | Committee

1 Protocol [redacted]
This protocol proposes to study the anti-inflammatory and anti-fibrotic effects of three different drugs as potential treatments for traumatic eye injuries through the use of a surgically-induced animal model (retinal detachment in rabbits). The main points of discussion were:
1. The formation of membranes (i.e., scars) in the eye following retinal detachment lead to poor vision outcomes.
2. The drug being tested were developed by a private biopharmaceutical company.
3. The efficacy of the drugs will be measured by the presence, or lack of, glial and RPE proliferation, glial hypertrophy and scarring, and the number of microglia and macrophages in the retina.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. The IACUC recommends that acepromazine always be used to sedate rabbits prior to administration of the drugs via oral gavage, as this can be a distressful procedure.
2. There is no description of the use of Healon in the Surgical Procedures section, but the Protocol Narrative states that there is a description.
3. Will a pharmaceutical-grade version or non-pharmaceutical-grade version of methotrexate be used? Both types are listed.
4. Has the delivery of drugs via water or food supplementation been considered, instead of via oral gavage?
Outcome: RM-DMR 8-0-0

2 Protocol [redacted] and associated housing SOP
This protocol application proposes to study the feasibility of using two different species of fish as biological control agents against invasive mussel populations in freshwater bodies. The main points of discussion were:
1. The fish species being evaluated are the endangered [redacted] and the non-native [redacted], and these will be provided to the PI by CDFW.
2. Laboratory experiments will be conducted at a research station adjacent to the lake. Field experiments will involve setting up temporary pens around lake infrastructure or habitats.
3. The health of the fish in the field experiments will be checked weekly, as opposed to daily, primarily to minimize the disturbance to the fish.
4. The efficacy of each species as a biological control agent will be determined by the amount of mussels consumed during the experiments.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all

identified in the revised protocol application that was sent back to the PI.
1. Provide more detail on animal use during Phase I of the field studies.
2. How are the health checks of the fish held in experimental pens being conducted?
3. Clarify whether the health of the fish will be checked daily for one week or three days after being placed in the experimental pen.
4. Since the water of the fish will not be changed during the lab experiment, will uneaten food be removed from the tanks be removed to prevent water quality issues?
Outcome: 9-0-0

3 Protocol [redacted]
This protocol proposes to study the effects of sepsis due to [redacted] as well as the effects of antibiotics and Conjugated Oligoelectrolytes (COEs) used as antibiotics. The main points of discussion were:
1. Animals are experimentally infected with various bacterial pathogens via oral gavage or intraperitoneal injection.
2. The use several COEs as an antimicrobial drug was proven successful *in vitro*. The *in vivo* dosages of some additional COEs still need to be determined through *in vitro* testing.
3. Animals are checked multiple times per day by research staff as part of a well-described humane endpoint monitoring plan. Any animals that are moribund due to sepsis will be humanely euthanized to alleviate severe pain or distress.
4. Animals experiencing sepsis are not given analgesics or sedatives to alleviate pain or distress.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. Further scientific justification is required for withholding analgesics or sedatives, to alleviate severe pain and distress, in this experimental sepsis model.
2. The antibiotics to be tested are categorized into Drug Classes. Is it necessary to test each drug in a Class, or would the effects of one antibiotic be similar to those of another antibiotic in the same class?
3. The Project Summary is too technical for a member of the lay public to understand and needs to be simplified.
4. The sepsis studies are similar to those from previous versions of the protocol. What more can be learned by infecting animals with the same strains of [redacted] used in the previous version of the protocol?
Outcome: RM-FCR 9-0-0

4 Protocol [redacted]
This protocol proposes to study the potential sex and individual differences in the choice to receive drug versus food reinforcement as well as the biological basis of observed sex/individual differences. The main points of discussion were:
1. Animals purchased from [redacted] that have already undergone jugular catheter placement with an [redacted] Vascular Access Button, and using a refined surgical technique, should have a lower incidence of post-surgical complications than animals that did not use the Button and the refined technique. The PI is encouraged to pursue this refinement.
2. This study will employ aptamer-based biosensors that have been developed by bioengineering collaborators.
3. Data from intact animals will be compared to animals that have been gonadectomized or ovariectomized to determine the role of sex hormones.
4. Behavioral assays are described in a separate SOP.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. Define the terms "extinction and reinstatement conditions".
2. Have the biosensors for cocaine and serotonin been tested *in vitro*?
3. Has the PI considered adopting the use of the [redacted] Vascular Access Button for the chronic indwelling catheter, as well as refining the surgical procedure by requiring one fewer incisions?
Outcome: 8-0-0

Other Animal Activity

Presenter | Committee

1. Animal Activity [redacted]
This animal activity proposes to study the occurrence of birds colliding with windows [redacted]. The main points of discussion were:
1. Graduate and undergraduate students will be walking around the perimeters of buildings [redacted] to determine an approximate frequency with which birds are found injured or dead within a defined distance from the building (i.e., 1 meter). It is presumed that these birds have been injured or killed due to a collision with the building windows. This data may be cited as a reason for [redacted] to consider retrofitting windows with equipment to deter bird collisions (e.g., decals).
2. If researchers encounter a bird that is injured, they may handle the animal using PPE and transport it to the [redacted] using their personal vehicle.
3. The IACUC is concerned about the potential for researchers, especially the undergraduates, to be exposed to birds carrying zoonotic diseases. The IACUC has referred this concern to UCSB Risk Management.
Outcome: RM-DMR 9-0-0

Protocol Annual Update

Presenter | Committee

1. Protocol [redacted]; Outcome: Approved by DMR
Reviewers: Chair, 021

2. Protocol [redacted]; Outcome: Approved by DMR
Reviewers: Chair, AV

Protocol Modification

Presenter | [redacted]

1. Protocol [redacted] Minor Modification (Correcting a typo); Outcome: Administratively confirmed by the IACUC [redacted]

2. Protocol [redacted] Minor Modification (Including dental acrylic in the list of chemical hazards); Outcome: Administratively confirmed by the IACUC [redacted]

3. Protocol [redacted] Minor Modification (Including dental cement in the list of chemical hazards); Outcome: Administratively confirmed by the IACUC [redacted]

4. Protocol [redacted] Minor Modification (Including dental cement in the list of chemical hazards); Outcome: Administratively confirmed by the IACUC [redacted]

5. Protocol [redacted] Minor Modification (Including dental cement in the list of chemical hazards); Outcome: Administratively confirmed by the IACUC [redacted]

6. Protocol [redacted] Minor Modification (Including dental cement in the list of chemical hazards); Outcome: Administratively confirmed by the IACUC [redacted]

7. Protocol [redacted] Minor Modification (Decreasing animal numbers); Outcome: Administratively confirmed by the IACUC [redacted]

8. Protocol [redacted] Minor Modification (Adding a funding source); Outcome: Administratively confirmed by the

IACUC [redacted]

9 Protocol [redacted] Minor Modification (Adding a funding source); Outcome: Pending administrative confirmation

Presenter | Committee

10 Protocol [redacted] Major Modification (Adding new studies); Outcome: Approved by DMR
Reviewers: Chair, AV

11 Protocol [redacted] Major Modification (Adding a new study); Outcome: Approved by DMR
Reviewers: Chair, AV

12 Protocol [redacted] Major Modification (Changing experimental treatment groups and adding the use of animals procured through a vendor); Outcome: Approved by DMR
Reviewers: Chair, AV

13 Protocol [redacted] Major Modification (Adding the use of RAC2[E62K] mice); Outcome: Approved by DMR
Reviewers: Chair, AV

14 Protocol [redacted] Major Modification (Adding the use of methotrexate and dipeptide of glycine-tyrosine for in vivo detection experiments); Outcome: Approved by DMR
Reviewers: Chair, AV

15 Protocol [redacted] Major Modification (Modifying the narrative to allow for collecting the baseline ERGs three days prior to the sodium iodate treatment and baseline fundus imaging); Outcome: Approved by DMR
Reviewers: Chair, AV

16 Protocol [redacted] Major Modification (Adding the use of live streaming and the housing space for experiments); Outcome: Approved by DMR
Reviewers: Chair, AV

Presenter | [redacted] AV

17 Protocol [redacted] Minor Modification (A subset of rats used in non-survival surgeries will also be used to determine the coordinates to be used for electrode placement); Outcome: Administratively confirmed by the IACUC [redacted] after AV consultation

18 Protocol [redacted] Minor Modification (Changing the administration method of disulfiram); Outcome: Administratively confirmed by the IACUC [redacted] after AV consultation

19 Protocol [redacted] Minor Modification (Increasing animal numbers); Outcome: Administratively confirmed by the IACUC [redacted] after AV consultation

SOP Modification

Presenter | Committee

1 Protocol [redacted] Animal Health Monitoring SOP Modification (Updating the procedures for sample collection and testing, for sentinel and principal animals); Outcome: Approved by DMR
Reviewers: Chair, 007

Action Items

Open Issues Coming Out of Meeting

Protocol Review

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Presenter |

1. Protocol [redacted] Outcome: RM-DMR 8-0-0
2. Protocol [redacted] and associated housing SOP; Outcome: RM-DMR
3. Protocol [redacted]; Outcome: RM-FCR
4. Protocol [redacted]; Outcome: RM-DMR
5. Protocol [redacted] and associated housing SOP; Outcome: RM-DMR

Protocol Modification

Presenter |

1. Protocol [redacted] Major Modification (Adding the use of [redacted] procedure space, and clarifying fluid restriction and surgical procedures); Outcome: Pending DMR

Previously Open Issues Completed

Other Animal Activity

Presenter |

1. Animal Activity [redacted]; Outcome: Approved by DMR

Protocol Modification

Presenter |

1. Protocol [redacted] Minor Modification (Adding a funding source); Outcome: Administratively confirmed by the IACUC [redacted]

Minutes: IACUC Meeting, 10/16/2020

Meeting time: 1:03 PM - 3:13 PM	**Members Present:** Chair, AV, 007, 020, 021, 028, 030, 034, 037 **Members Absent:** 031 **Guests:** 027, 036 **Comments:**

Voting results are presented as follows: approve - withhold approval - abstain (e.g. 9-0-0). Any member with a conflict of interest is recused at the appropriate time and is not counted in the voting; however, the quorum is verified prior to all voting. "RM-DMR" and "RM-FCR" refer to the IACUC actions taken when substantive information is lacking from a protocol and the Committee requires a protocol response, clarification, or modification (RM) from the PI, which will be reviewed by designated members of the Committee (DMR), or by the full Committee at a convened meeting (FCR). The order that topics are presented in the minutes does not necessarily represent the order that they were presented at the meeting.

Topics

Announcements

Presenter | Chair

1. Schedule of upcoming meetings: November 13, 2020; December 11, 2020; January 15, 2021; February 19, 2021; March 19, 2021; April 16, 2021; May 21, 2021; June 11, 2021; September 17, 2021

2. Review and vote to approve minutes from the September 18, 2020 IACUC meeting.
Outcome: Approval 8-0-1

3. Animal Welfare Concern
The Chair notified the Committee that a report of an animal welfare concern was recently received by the IACUC Office with regards to the animals housed in [redacted]. The concern was that some of the animals housed in this facility were not provided with enrichment in their enclosures. After a cursory review of the applicable protocols and housing SOPs, it was determined that the animals were receiving the approved levels of enrichment. The Chair appointed a sub-Committee to look further into the concern. The findings of the sub-Committee will be reported back to te IACUC upon completion of the investigation. Additionally, due to the COVID-19 pandemic, access to all buildings on campus is limited (including [redacted]). The person making the report did not have authorization to enter either [redacted] or [redacted]. The Department administration and the Chair of the Building Committee have been made aware of the situation.

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Presenter | [redacted]

4 Records Request

Further clarification has been received for the records request made, under the California Public Records Act, by a UCSB student for copies of all protocol applications submitted and approved during 2019. This student and an associate also made similar requests to the other UC campuses, and it was decided that the responses from each UC should be consistent. Due to the quantity and volume of the initial request, it was agreed that only ten protocols approved in 2019 would be released by each campus. The requesters also confirmed that protocols that use USDA-regulated species do not need to be included in this request. The selection of the ten protocols to be released has been left to the UC IACUCs. The Committee agreed that protocols that included Pain Category E procedures should not be included. The IACUC will ask each of the affected PIs if they consent to their redacted protocol being released and then choose from those the ten protocols with the least invasive/painful/distressful procedures. If fewer than ten PIs consent to releasing their protocol, the remainder will be selected at random. Any records to be released will have sensitive information redacted beforehand.

Also, an additional records request has recently been received, under the California Public Records Act, by a local criminal defense attorney. The information requested includes PI names, department affiliations, numbers and types of species used, duration of experiments, and method of euthanasia. The IACUC will not release the names of PIs. Most of the information requested is not stored in a list format, and new records do not need to be created to fulfill a request. The IACUC Office will be working with UCSB records request personnel and legal counsel to determine the most appropriate way to respond to this request.

Presenter | AV

5 Updates from September 19, 2020 power outage

During this planned power outage, multiple issues were identified in the vivaria. The electronic lighting control system in the [redacted] vivarium reset due to a momentary lapse in power (i.e., switch from regular power to generator). When reset, all the lights controlled by this system turn on at full intensity. [redacted] needed to manually reinstate the necessary program for the lighting control system in order to set the correct light cycle and intensity in the animal housing rooms. Metasys (building automation system) was operational during the power outage and maintained normal temperatures in all the animal rooms. The ARC's back-up environmental monitoring system; however, lost communication with its cloud server due to a campus networking issue. The ventilated quarantine cubicles in [redacted] were not operational during the power outage, but there were no animals housed in the cubicles. Finally, the air supply to the [redacted] animal satellite facility was interrupted, and only recently fixed, because of a failed fire damper affecting this room and several others on the first floor of this building. Exhaust ventilation was not affected. No animals were harmed as a result of these issues, and all issues have been addressed/fixed.

Presenter | 036

6 Update on Adoption of [redacted] Animals

The only update on this topic since the previous meeting is that department administration has asked the PI who collected the animals if s/he would like to adopt the animals and is currently awaiting a reply. The UCSB legal counsel is currently looking into whether these are considered to be university-owned animals, or if the PI can claim the animals as personal pets. Other than the adoption documents used by the IACUC, there is no other paperwork that needs to be completed to document the adoption of animals not covered by CDFW or endangered species permits.

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Presenter | Chair, AV, [redacted]

7 Discussion of SOPs used by multiple PIs and/or protocols
The IACUC reviews and approves SOPs that may be used by multiple PIs on multiple protocols. These SOPs describe the details of specific experimental procedures or animal husbandry and care procedures for a specific facility. The fact that these SOPs are used by multiple PIs and across multiple protocols creates administrative challenges for the IACUC in terms of tracking them and ensuring timely review. While there is no regulation stating that an SOP is limited to a three year approval period (similar to protocols), the IACUC will review an SOP at an IACUC meeting whenever a protocol application that uses the SOP is brought for *de novo* review. Therefore, an SOP could be reviewed at an IACUC meeting multiple times within a three year period. A suggestion has been made that if the IACUC were to limit each SOP to only being associated with one protocol and PI, this will create a clearer review schedule for these SOPs. However, the IACUC realizes that there are also disadvantages to this review plan. The IACUC administration will discuss the pros and cons of this suggestion and will bring the topic back to the Committee for discussion.

IACUC Member Continuing Education

Presenter | [redacted]

1 Lab Animal Magazine - Vol. 49, Issue 10; 211-213 (2020) Protocol Review Column; Dr. Jerald Silverman, Column Coordinator
Under construction: how to deal with noise and vibration in the animal facility?
The article was made available to the Committee and discussed during the meeting.

Protocol Review

IACUC Meeting | 10/16/2020

Presenter | Committee

1 Protocol [redacted]
This is the second time this application has been reviewed at an IACUC meeting. This protocol proposes to study the effects of sepsis due to [redacted] as well as the effects of antibiotics and Conjugated Oligoelectrolytes (COEs) used as antibiotics. The main points of discussion were:
1. The health of the mice receiving treatment with COEs is checked by researchers at least 4 times daily, which is more frequent than mice in other cohorts are being checked.
2. The IACUC still believes that the PI should investigate the possibility of administering analgesics to animals experiencing the effects of sepsis. While this may not be standard practice in this field of research, administering analgesics to these mice would better replicate the human clinical condition as most sepsis patients are given analgesics or sedatives. The IACUC would like the PI to conduct a pilot study that compares a cohort of experimental mice to one treated with analgesics. If there is no difference in the data or experimental outcome, this would indicate that the pain relief of the analgesics does not interfere with the experiment results. If there is a difference in the data or experimental outcome, this would indicate that there is a way to make this mouse model of sepsis more applicable to the treatment of sepsis in humans.
3. It is assumed that the standard Antibiotic Susceptibility Testing (AST) model will align with the human AST model.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. If the COEs are well-tolerated by mice, then why are those mice listed as being Pain Category E?
2. If human AST is more predictive than standard AST, then why are these mice studies needed before making a recommendation for the course of treatment for humans?
3. Are the pathogenic strains to be used for AST from patient isolates?
4. The IACUC wants the PI to conduct a pilot study that compares a regular cohort of experimental mice to one treated with analgesics. Does the administration of analgesia to these mice affect the data or outcome of the experiment? If analgesics alter the innate and adaptive immune response differently in mice versus humans, does this not call into question the applicability of the mouse model?
Outcome: RM-DMR 9-0-0

2 Protocol [redacted]
This protocol application describes a long-term study to collect data on the dispersal and recruitment patterns of larval fish in various marine locations ([redacted]) using artificial substrates (SMURFs) that mimic nearby kelp canopies. The main points of discussion were:
1. The SMURFs are designed to be effective for a particular group of species, so encountering non-targeted species is rare.
2. All of the larval and post-larval fish that recruit to the SMURF are euthanized. However, any non-target species are released beforehand.
3. The PI indicated that the recruitment of some fish species to the SMURFs can be seasonal.
4. Species identification of larval fishes requires the use of a microscope and cannot be done in the field.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. Since only a subsample of the fish collected from a SMURF will be used for analysis, must all the other fish collected also be euthanized? While species identification occurs back in the lab, is it possible for the PI to collect and euthanize only a representative subsample of the fish that recruit to a SMURF? The PI needs to justify why the sample size has not been refined for a study that has been ongoing for many years.
2. Provide references to previous studies that justify why the proposed sample size is requested.
3. Provide a reference that natural mortality at the settlement stage for fishes is extremely high, preferably something recent and pertaining to the [redacted] ecosystem.
4. The application says that SMURFs will be deployed at "up to 9 monitoring sites". Why is this number not definitively determined?
Outcome: RM-DMR 9-0-0

3 Protocol [redacted]

This protocol application describes the animal experiments being used to train students in animal use and behavioral assays in the [redacted] class. The main points of discussion were:

1. This lab has transitioned some of the animal experiments to an online learning format where students are shown videos of the animals undergoing the various experimental procedures and behavioral modifications described in the protocol.
2. The room where the lab meets is in a different building from the vivarium where the animals are housed. Therefore, rats that leave the vivarium for use by this class cannot return and must be euthanized at the end of the lab section.
3. A lower dose of amphetamine may by used if more sensitive monitoring equipment (i.e., activity monitor) is available to monitor changes in an animal's motor activity following amphetamine administration. However, these activity monitors are not always available as they are owned and used by another PI/lab. When these activity monitors are not available, the animals are treated with a higher dose of amphetamine so that the students can visually identify the changes in an animal's motor activity following amphetamine administration.
4. The cranial surgeries are performed by the PI and TAs. New TAs are taught surgical technique by performing non-survival surgeries on anesthetized animals. Undergraduates are taught surgical technique using recently euthanized animals.

The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.

1. Will the number of animals needed for this course continue to be reduced since it is being offered remotely? If not, the PI should justify why the reduction in animal numbers, from using video recordings for online learning, should be discontinued so that the use of live animals in the lab may resume.
2. The lidocaine HCl/epinephrine volume listed is the one for mice, not rats.
3. Does a reduced dose of amphetamine used for the amphetamine sensitization test mean that these animal will experience less distress than if a higher dose were administered? If so, can the PI procure activity monitors so that a lower dose of amphetamine can be regularly used during this test?

Outcome: RM-DMR 8-0-0

4 Protocol [redacted] and associated housing SOP

This protocol application proposes to study the relationship between water temperature and the diet of wild-caught, omnivorous fish ([redacted] The main points of discussion were:

1. The growth, metabolic, cardiovascular, and cellular performance of [redacted] will be evaluated through their exposure to varying water temperatures and being fed varying diets.
2. The animal procedures described in this protocol are similar to the animal procedures described in some of the PI's other approved IACUC protocols. The IACUC recommends that the PI consider creating an SOP that includes the detailed descriptions of these procedures and referring to this SOP in the protocols.
3. The harvested tissues, gut contents, and fecal samples from fish will be analyzed to determine the cellular and molecular mechanisms of the patterns observed in the experiments.

The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.

1. The project description needs to be reorganized so that it is more clear, for each area of investigation, which experiments are being used, how many fish are being used, and whether the fish need to be euthanized at the end of the experiment.
2. If fish can be reused for multiple experiments, how many different experiments might each fish undergo before being euthanized? Is there a possibility that procedures from a previous experiments will affect the results of a later experiment?
3. All fish are listed as being in Pain Category E, but there is no explanation as to why this this is the appropriate category for the animals in each experiment. Please provide these explanations.
4. After Experiment #8, are fish immediately returned to their home tank (i.e., appropriate water temperature) or is the water temperature in the experimental tank gradually reduced before returning the fish to their home tank? What is the maximum possible temperature change if fish are immediately returned

to their home tank?
Outcome: RM-FCR 9-0-0

5 Protocol [redacted]
This protocol proposes to study anastasis and which cell types it occurs in. The main points of discussion were:
1. Anastasis is the reversibility of cell death.
2. A biosensor (trans gene product) will be used to identify and track cells *in vivo* that survive caspase activation.
3. The lab is now trying to determine the potential for anastasis to occur in non-neuronal cells of the brain (i.e., astrocytes and microglia).
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. Will the mice used for breeding also be used as experimental subjects?
2. If the homozygous mice of this line have a painful/distressful phenotype, a description of the genotyping procedures needs to be included to ensure homozygous mice are not produced.
3. Has the pilot part of this study been completed? References to this study should be removed if so.
4. The experimental description should be revised to clarify that several types of cells have been isolated for anastasis testing, but now the project will be focusing on astrocytes and microglia cells.
Outcome: RM-DMR 9-0-0

Other Animal Activity

Presenter | Committee

1 Animal Activity [redacted]
This animal activity covers a contract subaward to three PIs (two of which are at foreign institutes). At this time, the IACUC is focusing on the work to be conducted at [redacted] for studies involving the use of mice. [redacted] currently has an Animal Welfare Assurance through OLAW. The PI at [redacted] proposes to establish a methodology to isolate proteins interacting with calcium-phosphate in the mitochondrial matrix of mouse neuronal cells. Mice without a painful/distressful phenotype will be bred and euthanized with CO2 before undergoing post-mortem tissue harvest. The description for this project from the award proposal was provided to the Committee. According to [redacted] law, this study does not require specific review and approval by an oversight body equivalent to the IACUC. The PI has a permit issued by the [redacted] government that allows for her/him to conduct procedures described. A copy of this and a translation of the relevant [redacted] regulations were also provided to the IACUC. The IACUC voted to accept the project and accompanying documentation.
Outcome: Accepted and initiate MOU 9-0-0

Protocol Annual Update

Presenter | Committee

1 Protocol [redacted] Annual Update; Outcome: Approved by DMR
Reviewers: Chair, 020

2 Protocol [redacted] Annual Update: Outcome: Pending DMR

Protocol Modification

Presenter | [redacted]

1 Protocol [redacted] Minor Modification (Adding a funding source); Outcome: Administratively confirmed by IACUC [redacted]

IACUC Meeting | 10/16/2020

2 Protocol [redacted] Minor Modification (Adding a funding source); Outcome: Administratively confirmed by IACUC [redacted]

3 Protocol [redacted] Minor Modification (Adding a funding source); Outcome: Administratively confirmed by IACUC [redacted]

4 Protocol [redacted] Minor Modification (Adding a funding source); Outcome: Administratively confirmed by IACUC [redacted]

Presenter | Committee

5 Protocol [redacted] Major Modification (Adding new field sites and funding sources); Outcome: Approved by DMR Reviewers: Chair, AV

6 Protocol [redacted] Major Modification (Adding a pilot experiment); Outcome: Approved by DMR Reviewers: Chair, AV

7 Protocol [redacted] Major Modification (Adding an experiment with ketogenic diet, as well as an experiment with bolus BHB administration); Outcome: Pending DMR

Presenter | [redacted] AV

8 Protocol [redacted] Minor Modification (Adding the use of carprofen in tablet form); Outcome: Administratively confirmed, after AV consultation, by the IACUC [redacted]

Action Items

Open Issues Coming Out of Meeting

Protocol Review

Presenter |

1 Protocol [redacted] Outcome: RM-DMR

2 Protocol [redacted]; Outcome: RM-DMR

3 Protocol [redacted] and associated housing SOP; Outcome: RM-DMR

4 Protocol [redacted]; Outcome: RM-DMR

5 Protocol [redacted]; Outcome: RM-DMR

6 Protocol [redacted] and associated housing SOP; Outcome: RM-DMR

7 Protocol [redacted]; Outcome: RM-DMR

Protocol Modification

Presenter |

1 Protocol [redacted] Major Modification (Adding the use of [redacted] procedure space, and clarifying fluid restriction and surgical procedures); Outcome: Pending DMR

Previously Open Issues Completed

Protocol Review

Presenter |

1. Protocol [redacted] and associated housing SOP; Outcome: Approved by DMR
2. Protocol [redacted]; Outcome: Approved by DMR

Protocol Annual Update

Presenter |

1. Protocol [redacted] Annual Update; Outcome: Approved by DMR

Protocol Modification

Presenter |

1. Protocol [redacted] Major Modification (Adding an experiment with ketogenic diet, as well as an experiment with bolus BHB administration); Outcome: Approved by DMR

Minutes: IACUC Meeting, 11/13/2020

Meeting time:
1:03 PM - 2:57 PM

Members Present: AV, Chair, 007, 020, 021, 028, 030, 031, 034, 037
Members Absent:
Guests: 027, 036, 038
Comments: Member 030 arrived after the start of the meeting. Member 028 left before the end of the meeting.

Voting results are presented as follows: approve - withhold approval - abstain (e.g. 9-0-0). Any member with a conflict of interest is recused at the appropriate time and is not counted in the voting; however, the quorum is verified prior to all voting. "RM-DMR" and "RM-FCR" refer to the IACUC actions taken when substantive information is lacking from a protocol and the Committee requires a protocol response, clarification, or modification (RM) from the PI, which will be reviewed by designated members of the Committee (DMR), or by the full Committee at a convened meeting (FCR). The order that topics are presented in the minutes does not necessarily represent the order that they were presented at the meeting.

Topics

Announcements

Presenter | Chair

1. Schedule of upcoming meetings: November 13, 2020; December 11, 2020; January 15, 2021; February 19, 2021; March 19, 2021; April 16, 2021; May 21, 2021; June 11, 2021; September 17, 2021

2. Review and vote to approve minutes from the October 16, 2020 IACUC meeting.
Outcome: Approved 9-0-1

3. Animal Welfare Concern Investigation Report
The Chair presented the investigation report for the animal welfare concern that was summarized and discussed at the previous meeting. Prior to the November meeting, the sub-Committee was able to speak with one of the caretakers and view the animals via Zoom. The animals of concern appeared to be healthy and active, and the new enrichment added to their enclosures appeared to be appropriate. The details of the Zoom meeting will be added to the investigation report and reviewed by the IACUC at the next convened meeting.

Presenter | [redacted]

4. Fall 2020 Semiannual Facility Inspections and Program Review
The Program Review for this inspection cycle was conducted last month. The majority of facility inspections for this cycle have not yet been conducted due to COVID. UC Santa Barbara received a waiver from OLAW on conducting semiannual facility inspections while conditions remain unsafe during the pandemic. While campus remains only open to personnel deemed essential, the IACUC feels it can safely conduct the inspections using Zoom and the essential personnel currently on campus. It is likely that there will be fewer areas than usual that need to be inspected because they have not been used for animal activities in the past six months due to COVID.

IACUC Meeting | 11/13/2020

Presenter | AV

5 Temporary ramp down of ARC operations
Prior to Thanksgiving, the ARC [redacted] usually restricts PIs from placing new animal orders until the new year. This is because the vendors are closed and to allow for ARC staff to take time off. However, the AV has requested this ramp down occur slightly earlier this year since some of the ARC staff have been on sick leave or have been in self-quarantine due to a close contact COVID exposure outside of work and, therefore, fewer technicians are available to work. Some non-essential ARC maintenance has been put on hold while staffing levels are low. The AV is hoping that all ARC staff will be healthy and able to return to work prior to winter break. However, keeping the ARC staff safe and healthy is the top priority, and ARC functions may need to ramp down again in the future should more technicians need to take sick leave.

Presenter | Chair, AV

6 Discussion on the use of BRUVs
Recently, a Research Biologist contacted the IACUC to confirm that their oversight is not needed for the use of Baited Underwater Remote Vehicles (BRUVs). While rare, this question has been asked of the IACUC Office before. It was recommended that this discussion be brought to an IACUC meeting so that the Committee could determine whether each request should be considered or whether a blanket approval can be applied. BRUVs are usually fitted with video equipment to record animals encountered underwater. While bait is used to attract animals to the location of the BRUV, this is usually not considered materially altering to the animals' behavior and not subject to IACUC oversight. The Chair requested that the IACUC Office find out what other campuses are doing prior to making a decision.

7 Protocol [redacted] Incident
Recently, there was an incident where a lab member did not follow the proper procedures for the administration of tamoxifen (a chemical hazard) to mice. The ARC staff was not notified of the lab's plans to administer tamoxifen to animals. The Animal Facility Safety and Hygiene Plan for tamoxifen was not posted on the door following administration. The cage containing the tamoxifen treated mice was not properly labeled (i.e., chemical hazard sticker). The mice were also not placed in a disposable cage setup prior to administration, so the non-disposable caging will need to be disposed of via incineration. The lab member responsible for administering the tamoxifen has been involved in multiple non-compliant incidents and investigations prior to this. The IACUC is concerned that additional non-compliances may occur should this lab member be allowed to continue working with animals. The IACUC determined that punitive actions, such as removal from the protocol roster, should be taken if the lab member is involved in another substantial non-compliant incident. The IACUC would like for this to be discussed when the sub-Committee meets with the PI and lab member to investigate this incident.

Presenter | Committee

8 Spring 2020 Semiannual Inspection and Program Review
Outcome: Approved 10-0-0

IACUC Policy

Presenter | Committee

1 UCSB Guideline Administration of Therapeutic or Experimental Substances to Animals, Including Non-Pharmaceutical-Grade or Controlled Substances Modification (Adding the use of etomidate:xylazine cocktail for anesthesia); Outcome: Approved by DMR

Protocol Review

IACUC Meeting | 11/13/2020

Presenter | Committee

1 Protocol [redacted] and associated housing SOPs
This protocol application describes an [redacted] parasitology class designed to teach students how to design experiments, interpret data, and perform dissection techniques. The main points of discussion were:
1. The rats will be inoculated with a relatively low dose of parasites. Therefore, the animals are not expected to experience health issues or symptoms related to the parasite infection.
2. Prior to being dissected by students, the fish and frogs will be humanely euthanized by TAs in areas without students present.
3. The IACUC is aware that the lab has a collection of frozen fish specimens. It recommends that the lab use these specimens for teaching prior to collecting more.
4. The IACUC would like the PI to poll the students in the course as to whether or not they found the use of live animal demonstrations useful.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. From which vein is blood being sampled from rats, after parasite inoculation?
2. What types of PPE are used when sharks or rays are handled?
3. There are five types of fish that will be used for this course. Is a specimen from each type needed or would a subset be sufficient to show the parasites being studied?
4. Why can frozen rockfish be used, but other species must be studied only when recently euthanized?
Outcome: RM-DMR 9-0-0

2 Protocol [redacted]
The purpose of this protocol application is to teach students enrolled in the [redacted] and [redacted] classes how to perform techniques commonly used in the fields of pharmacology and immunology. The main points of discussion were:
1. One of the class exercises involves the use of rats to teach students about the function of the liver cytochrome P-450 enzyme system in creating metabolites.
2. One of the class exercises involves the use of mice to teach students about the difference of cell populations in organs, specifically lymphocytes harvested from the spleen and thymus.
3. One of the class exercises involves the use of mice to create monoclonal antibodies using an antigen: adjuvant solution.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. Why is ovalbumin always used for monoclonal antibody production in mice? Would it be possible to identify a protein of research interest to someone at UCSB and use that instead?
2. A Project Update is needed.
3. Now that at least one of these courses has been offered via online instruction, the IACUC needs justification as to why live animals continue to be needed. Why can't these exercises (especially the lymphocyte cell sorting and morphology labs) be replaced entirely by in-vitro experiments (e.g., using cell populations purchased from a commercial vendor) or videos?
Outcome: RM-DMR 9-0-0

3 Protocol [redacted]
The purpose of this protocol application is to teach students enrolled in the [redacted] class a variety of laboratory techniques and methodologies commonly used to study the biological basis of hormonally-influenced behaviors. The main points of discussion were:
1. The lab exercises that use live animals involve administering a hormone or hormone antagonist, observe the animals' behavior, and then collecting blood or tissue to study the physical effects of the substance on the subjects.
2. For biosecurity reasons, the animals used for this class are not allowed to be removed from a vivarium and then returned; therefore, animals cannot be reused as much as the IACUC would prefer.

3. Students will only perform minimally invasive procedures (e.g., blood collection, injections) or terminal tissue harvests on animals.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. The IACUC would like further justification as to why pharmaceutical-grade estradiol and progesterone cannot be used?
2. The IACUC needs justification as to why live animals continue to be needed. Why can't these exercises be replaced entirely by videos?
Outcome: RM-DMR 8-0-0

4 Protocol [redacted]
This protocol application proposes to study how the cardiovascular function and blood chemistry of fish are affected when exposed to environmental stressors, including increased water temperature: The main points of discussion were:
1. Above average temperatures are known to cause cardiovascular failure and blood chemistry change in fish. References are needed.
2. Prior to each of the experiments, fish will be acclimated to one of three different temperature ranges. These are the upper and lower ends of the fish's thermal range, as well as an oscillating temperature that mimics diel and tidal changes.
3. Heart rate performance is tested using the Cardiac Arrhenius Breakpoint Test.
4. Fish will undergo a non-survival surgery where the major vessels of the heart are catheterized and the heart is perfused with various agents (e.g., potassium cholride) to mimic the effects of a noxious envrionment (i.e., hyperkalemia) and to study their detrimental effects to cardiac performance.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. Will using fish specimens of different sexes or sizes have an effect on the results?
2. If the perfusion solutions used are the same, why can the fish hearts from Experiment #3 not be reused for Experiment #2?
3. During the Cardiac Arrhenius Breakpoint Test, how is the water temperature raised if the only water pumped will be flowing across the fish's gills?
4. Why is the sample size set at 10 if only 8 fish is considered the minimum needed?
Outcome: RM-FCR 10-0-0

Protocol Modification

Presenter | [redacted]

1 Protocol [redacted] Minor Modification (Adding a funding source); Outcome: Administratively confirmed by IACUC [redacted]

2 Protocol [redacted] Minor Modification (Correcting a typo); Outcome: Administratively confirmed by IACUC [redacted]

Presenter | Committee

3 Protocol [redacted] Major Modification (Adding the use of creatinine. Pre-review discussion on dosing to be appended to the protocol); Outcome: Approved by DMR

Presenter | [redacted] **AV**

4 Protocol [redacted] Minor Modification (Adding the option to breed WT Sprague Dawley rats for the Tricaprylin Administration study, rather than purchase); Outcome: Administratively confirmed, after AV consultation, by the IACUC [redacted]

SOP Modification

IACUC Meeting | 11/13/2020

Presenter | Committee

1. Protocol [redacted] SOP Modification (Adding the use of pelt swab testing); Outcome: Pending DMR

Action Items

Open Issues Coming Out of Meeting

Protocol Review

Presenter |

1. Protocol [redacted] and associated housing SOP; Outcome: RM-DMR
2. Protocol [redacted]; Outcome: RM-DMR
3. Protocol [redacted]; Outcome: RM-DMR
4. Protocol [redacted] and associated housing SOP; Outcome: RM-FCR
5. Protocol [redacted]; Outcome: RM-DMR
6. Protocol [redacted] and associated housing SOPs; Outcome: RM-DMR
7. Protocol [redacted]; Outcome: RM-DMR
8. Protocol [redacted]; Outcome: RM-DMR
9. Protocol [redacted] Outcome: RM-FCR

Previously Open Issues Completed

Protocol Review

Presenter |

1. Protocol [redacted] Outcome: Approved by DMR
2. Protocol [redacted]; Outcome: Approved by DMR

Protocol Modification

Presenter |

1. Protocol [redacted] Major Modification (Adding the use of [redacted] procedure space, ear clipping, citric acid treated drinking water. Revising fluid restriction, surgical, and post-op procedure descriptions); Outcome: Approved by DMR
2. Protocol [redacted] SOP Modification (Adding the use of pelt swab testing); Outcome: Approved by DMR

Minutes: IACUC Meeting, 12/11/2020

Meeting time:
1:02 PM - 3:49 PM

Members Present: AV, Chair, 007, 021, 028, 030, 031, 034, 037, 038, 039
Members Absent: 020
Guests: 027, 036
Comments: 007 arrived after the start of the meeting

Voting results are presented as follows: approve - withhold approval - abstain (e.g. 9-0-0). Any member with a conflict of interest is recused at the appropriate time and is not counted in the voting; however, the quorum is verified prior to all voting. "RM-DMR" and "RM-FCR" refer to the IACUC actions taken when substantive information is lacking from a protocol and the Committee requires a protocol response, clarification, or modification (RM) from the PI, which will be reviewed by designated members of the Committee (DMR), or by the full Committee at a convened meeting (FCR). The order that topics are presented in the minutes does not necessarily represent the order that they were presented at the meeting.

Topics

Announcements

Presenter | Chair

1. Schedule of upcoming meetings: November 13, 2020; December 11, 2020; January 15, 2021; February 19, 2021; March 19, 2021; April 16, 2021; May 21, 2021; June 11, 2021; September 17, 2021

2. Review and vote to approve minutes from the November 13, 2020 IACUC meeting.
Outcome: Approved 8-0-2

3. Animal Welfare Concern Investigation Report
The Chair provided a brief summary of the investigation into the welfare concern reported for the animals housed in [redacted]. There have been no revisions to the draft of this investigation report since it was last reviewed by the Committee. The draft was shared with the UCSB legal counsel to make sure s/he is apprised of the details, and the counsel had nothing to add.
Outcome: Approved and Reportable to AAALAC 10-0-0

4. Protocol [redacted] Investigation Report
On October 19, 2020, the IACUC was informed of an incident where a lab member did not follow the proper procedures for the administration of tamoxifen (a chemical hazard) to mice. This incident was summarized during the November IACUC meeting. The sub-Committee has since met with the lab member and their PI to discuss the details of the incident. The main reason the lab member did not use the correct version of the AFSHP for tamoxifen was that s/he did not realize this had been updated in June 2020. While the updated AFSHP was distributed to the lab member, they did not realize they had received it because they were only copied on the email (i.e., not specifically addressed to) with the attached AFSHP and the title of the new version was similar to that of the older version. While the IACUC understands how a mistake like this could occur, they are also concerned that the lab member was not paying attention to detail. This lab member has been involved in several noncompliant incidents over the past few years and this has been noted by the Committee. The IACUC reaffirmed its decision from the November meeting that the ARC access of the lab member should be revoked should they be involved in one more substantial incident of noncompliance. The IACUC Chair will send a letter to the PI and lab member to notify them of this decision.
Outcome: Approved and Reportable to AAALAC 11-0-0

5. Protocol [redacted] Investigation Report
On November 11, 2020, a PI reported to the AV that multiple rats that were experiencing clinical

abnormalities after undergoing surgery. After checking on the rats, the AV noticed that most of the animals in the cohort were exhibiting abnormalities and euthanized the five animals that were most severely affected. Upon conducting a necropsy, he found internal lesions and necrotic tissues that indicated a thermal injury. Since the animals recently underwent surgery, he determined that the cause was most likely due to burns from the heating pad that was used. Upon examining the heating pad, the AV determined that the pad's automatic shutoff feature failed after it exceeded a temperature of 107.6 degrees Fahrenheit. Additionally, he determined that different areas of the pad were not heating evenly and were reaching temperatures up to 120 degrees Fahrenheit. The AV recommended that the PI send the malfunctioning heating system (along with an identical system) back to the manufacturer for repair. The PI has discussed the possibility of using heating systems that use water circulation since those seem to have had a lower rate of malfunctions in the past. The IACUC discussed ways in which surgeons could potentially check the heating systems they will use, prior to beginning surgery, to ensure that they are functioning properly. The most practical method suggested is that the surgeon use an infrared thermometer to measure the temperature on the surface of the pad. Additionally, the IACUC would like all surgeons to have read and have access to the heating system operating manual.
Outcome: Approved and Reportable to OLAW and AAALAC 10-0-0

6 New member introduction

Two new members have recently joined the IACUC and are participating in their first meeting. One of the new members is a [redacted] that works with laboratory animals in the vivarium. The other new member is not affiliated with UCSB (i.e., community member). Lastly, this is the final meeting being held with the current community member in attendance.

Presenter | AV

7 EOC table-top exercise

The AV is a part of the Emergency Operations Committee (EOC), which recently conducted an exercise where members discuss how they would respond in the event of a disaster or other emergency situation. The scenario for this exercise was a virus pandemic with outbreaks in multiple buildings, including [redacted] and concurrent facility maintenance issues. The main strategy proposed for preventing the spread of the virus was to shut down the affected buildings and to minimize the number of personnel allowed to enter. The ARC Staff would be expected to continue to provide husbandry and care for the animals in the vivaria during this time. However, if any of the ARC Staff become sick or are unable to work, this may limit the ARC's ability to provide sufficient care for the animals. If the workload becomes too great for the number of healthy personnel working, the ARC Staff may need to consider euthanizing some or all of the animals. The AV reported that the EOC was able to successfully make it through the exercise without euthanizing any animals.

8 Discussion of PIs conducting surgery prior to undergoing the AV's proficiency evaluation

The IACUC received a request from a PI to conduct an unsupervised survival surgery prior to undergoing a surgical technique competency evaluation with the AV. This request was temporarily granted via DMR until the matter could be discussed during an IACUC meeting. The PI is ready to do the competency evaluation, but this is not possible during the COVID-19 pandemic because it must be conducted by the AV in person, as opposed to via video conferencing. The PI has performed the IACUC-approved surgical procedures numerous times at their previous institute, which is also accredited by AAALAC, before coming to UCSB. The IACUC subsequently received a similar request from a different PI for their graduate student, who is also ready to undergo the competency evaluation with the AV, to conduct survival surgery unsupervised. The IACUC agreed to allow these surgeons to conduct their survival surgeries unsupervised if certain conditions are met to ensure animal health during surgery. 1) The surgeon must confirm that they were found to be technically proficient in the same surgical procedures by a veterinarian at their previous AAALAC-accredited institute; 2) Before conducting the first survival surgery, the procedures should be practiced on a recently euthanized animal cadaver; 3) The AV must monitor the first survival surgery via Zoom to ensure that the basic techniques are being properly performed; 4) When monitoring the animals postoperatively, the AV and/or ARC staff should be notified at any possible sign of abnormality in the animals; 5) The surgeries should be scheduled to occur during regular business hours so that the AV may be contacted and consulted in case of any complications. The surgeons should schedule their competency evaluation with the AV once social distancing measures have been lifted.

Outcome: Approved 10-0-1

9 Update on [redacted] animals

The IACUC and Department administrations, as well as the UCSB legal counsel, have been discussing further the possible disposition for the animals housed in [redacted] on the AV's holding protocol. The IACUC-approved protocols and SOPs that would normally cover the use of these animals for research and teaching are expiring on March 2, 2021. When the protocols and SOPs expire, the animals will no longer have the option to be transferred back from the holding protocol to the research or teaching protocols. Since it has been consistently difficult to find qualified personnel to care for these exotic animals, all parties are in favor of the animals being adopted and removed from campus after the protocol expiration date. The PI will be notified of this decision and given the first chance at adopting these animals before other arrangements are made.

10 Discussion of graduate students undergoing surgical training

The IACUC has been made aware of a few PIs training their graduate students in surgical procedures during the COVID-19 pandemic. The initial training of surgical procedures must be done in person, which is made difficult by social distancing measures. The Vice Chancellor for Research has recently provided guidance on how close contact training may be safely conducted. The IACUC is inclined to allow this training to occur, but determined that there were certain conditions that need to be met to ensure animal health during surgery. 1) The surgeon should discuss the details of the surgery with the PI or trainer beforehand; 2) Once the surgeon is familiar with the surgical technique, the trainer may supervise the surgery via Zoom, but should be located nearby so that they may intervene if complications arise. The PI must confirm that they believe that the surgeon is capable of being trained and supervised remotely; 3) Before conducting the first survival surgery, the procedures should be practiced on a recently euthanized animal cadaver; 4) The AV must monitor the first survival surgery via Zoom to ensure that the basic techniques are being properly performed; 5) When monitoring the animals postoperatively, the AV and/or ARC staff should be notified at any possible sign of abnormality in the animals; 6) The surgeries should be scheduled to occur during regular business hours so that the AV may be contacted and consulted in case of any complications.

Outcome: Approved 10-0-1

11 Protocol [redacted] Adverse Event
This topic was only briefly summarized for the Committee and was not discussed due to time constraints. After an animal was injected with an experimental substance, it began to exhibit clinical abnormalities and was euthanized for humane reasons. An investigation report with the details of the incident will be discussed at an upcoming IACUC meeting.

12 Protocol [redacted] Adverse Event
This topic was only briefly summarized for the Committee and was not discussed due to time constraints. Three mice that underwent surgery exhibited signs of thermal injury during the postoperative period. An investigation report with the details of the incident will be discussed at an upcoming IACUC meeting.

13 Protocol [redacted] Adverse Event
This topic was only briefly summarized for the Committee and was not discussed due to time constraints. Several mice that had been experimentally infected with pathogenic [redacted] were found dead in their cages. An investigation report with the details of the incident will be discussed at an upcoming IACUC meeting.

IACUC Policy

Presenter | Committee

1 IACUC Guideline Humane Experimental Endpoints Modification (Adding a reference); Outcome: Pending DMR

Protocol Review

IACUC Meeting | 12/11/2020

Presenter | Committee

1 Protocol [redacted]
This protocol proposes to identify early plasma biomarkers that correlate with the onset of diabetes in the [redacted] model. The main points of discussion were:
1. Once genes of interest are identified, assisted reproductive technologies will be used to create transgenic [redacted] and [redacted] derived embryonic stem cells.
2. Experimental animals will be euthanized at 24 weeks of age. However, these diabetic animals may or may not be experiencing health complications by this point. The IACUC recommends that some of these animals be listed as experiencing Pain Category C, as opposed to only Pain Category D.
3. The animal number calculations indicate that the breeding pairs cannot be used for more than one Experimental Aim. The lab needs to provide justification for why this is the case.
4. Previous data indicates a sex disparity with the onset of diabetes in this model. Data for female [redacted] will not be tracked as this cannot be combined with the data from males. However, rationale for not collecting this data and analyzing it separately from the male data needs to be provided. It was also suggested that a difference in environment, such as social housing, could be the cause of the sex disparity in diabetes onset.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. How will cross-fostered male rats be tested to identify the influence of maternal diet, and what will their experimental endpoint be?
2. If only one litter is needed per breeding pair, why do these animals need to be maintained until 10 months of age?
3. Can iPS cells be used instead of blastocysts? Will the blastocysts be tested in different *in vitro* culture conditions?
4. Why can the unneeded pups produced in Experimental Aim 4 not be used for Experimental Aim 2?
Outcome: RM-DMR 11-0-0

2 Protocol [redacted]
This protocol proposes to study the neural tube closure process in developing *Xenopus* embryos. The main points of discussion were:
1. The number of animals requested is lower than in previous years because the lab is only anticipating about one year worth of work left on this project.
2. Female frogs will be hormonally-induced to first produce mature oocytes and then ovulate about one week later.
3. Male frogs will be euthanized before their testes are harvested.
4. The eggs will be fertilized *in vitro* by mixing them with minced testes in a petri dish.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. What sort of experimental errors may be encountered that would cause laying issues and/or experimental repeats?
2. Why will frogs only have their eggs harvested twice when this procedure can be done up to four times?
3. In the Project Update section, provide any recent journal articles that were published due to the ongoing work in this project.
Outcome: RM-DMR 11-0-0

3 Protocol [redacted]
This protocol proposes to study how the infection dynamics of raccoon roundworm has changed after a canine distemper outbreak resulted in a decreased raccoon population. The main points of discussion were:
1. Raccoon roundworm larvae can infect human and intermediate hosts (rodents) and lead to serious health complications.
2. Wild rodents will be trapped, humanely euthanized, and searched for parasites during necropsy.

3. The necropsy of wild rodents presents an aerosolized health risk to the researcher and must be conducted in a biosafety cabinet or while wearing an N95 respirator.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. How are trapping grids laid out? Will they be located near latrines, similar to how trapping was done in previous studies?
2. Have the BUA and ATD been approved for this study?
Outcome: RM-DMR 11-0-0

4 Protocol [redacted] and associated housing SOPs
This is the second time this application has been reviewed at an IACUC meeting. This protocol application proposes to study how the cardiovascular function and blood chemistry of fish are affected when exposed to environmental stressors, including increased water temperature: The main points of discussion were:
1. Most of the questions and comments from the previous IACUC meeting have been addressed by the PI.
2. While the PI may have experience performing this surgery, the AV is not familiar enough with the procedure to determine whether the PI is proficient. The IACUC would still like the AV to observe the PIs first surgery to confirm their competency in fish surgery basics.
3. The IACUC would also like for the AV to observe the first unsupervised surgeries conducted by the new surgeons to confirm their competency in fish surgery basics.
The IACUC requested clarifications on the issues listed below, and other minor issues, which are all identified in the revised protocol application that was sent back to the PI.
1. Does the PI have previous experience performing this surgery? Was the PI deemed proficient in this surgery by a veterinarian at their previous institute?
2. How will surgeons be trained by the PI? If this must be done in person, the surgeon and trainer must both wear appropriate PPE while in close proximity.
3. The AV will need to inspect the room that is designated for surgical procedures before it is used.
Outcome: RM-DMR 11-0-0

Protocol Modification

Presenter | Committee

1 Protocol [redacted] Major Modification (Changing the meloxicam dose and the minimum age which mice can start undergoing surgery from 12 to 9 weeks); Outcome: Approved by DMR

Action Items

Open Issues Coming Out of Meeting

Protocol Review

Presenter |

1 Protocol [redacted] and associated housing SOP; Outcome: RM-DMR

2 Protocol [redacted]; Outcome: RM-DMR

3 Protocol [redacted]; Outcome: RM-DMR

4 Protocol [redacted] and associated housing SOP; Outcome: RM-FCR

5 Protocol [redacted] Outcome: Pending DMR

Previously Open Issues Completed

IACUC Policy

Presenter |

1. IACUC Guideline Humane Experimental Endpoints Modification (Adding a reference); Outcome: Approved by DMR

Protocol Review

Presenter |

1. Protocol [redacted]; Outcome: Approved by DMR
2. Protocol [redacted] and associated housing SOPs; Outcome: Approved by DMR
3. Protocol [redacted]; Outcome: Withdrawn by PI
4. Protocol [redacted]; Outcome: Approved by DMR
5. Protocol [redacted]; Outcome: Approved by DMR
6. Protocol [redacted]; Outcome: Approved by DMR
7. Protocol [redacted] and associated housing SOPs; Outcome: Approved by DMR