

University of Washington  
April 19, 2018 IACUC Meeting Minutes

Members Present:	AS	JM	SH
	CH	JS	SL
	FRR	KL	TH (Call in)
	JB	LJE (Call in)	*JF
	JE	ML	
	JFI	MS	

Members Absent:	TB	JPVH	CG
	AB	JLS	

\*JF alternate for TB

### Opening Business

- The IACUC Chair called the meeting to order at 2:30 pm.

### Confirmation of a Quorum and Announcement

- Quorum was confirmed by KC.

### Approval of the IACUC Meeting Minutes

- The IACUC Chair called for the approval of the March 15, 2018 meeting minutes.  
Motion was made and seconded: to approve the minutes with corrections to the discussion on protocol 4266-02, an instruction about Site Visit Training and the summary of protocol 4423-01  
Discussion: *None*  
Vote: Approved with 13 members voting in favor and 3 abstentions.

### OAW Director's Report – STI

- 4315-02
  - One of the NHP's was moved from a standard cage to a tethered caging system and then when it was moved into the new cage and placed in the room. The next morning, someone noticed that the water line was not hooked up. The animal was okay and showed no sign of issues. The tech who checked the cage before said there was water in the line. The hose was not hooked up, but there could've been water in the water line. We don't know if the animal went 12 hours without water.  
There is a system of double checks in place and worked, the hose was just not hooked up.

**This has been reported to the USDA and OLAW.**

- 2370-30
  - Double dose of rapamycin.  
2 animals got one gavage dose for blood draws and one more dose once they returned to their home cage. The second dose was after the data point was collected. There was no further data collected the rest of the week.  
This was self-reported. The animal techs and the research support staff have put necessary steps in place to avoid this in the future. This is a non-compliance.

**This has been reported to the USDA and OLAW.**

University of Washington  
April 19, 2018 IACUC Meeting Minutes

- Adverse Event

- The animal techs came into a room and found one of the NHP's had become tangled into its enrichment device. These enrichment devices go on the front of the cage to allow animals to reach through the bar and forage. The animal was able to pull a portion of a chain through the bars and around its head and got its caught on its jaw, resulting in asphyxiation.

The stock product is a commercial product doesn't work for our primate center due to the installation requiring 3 locks so alterations were being made in order for there to be less chains and easier attachment with only one lock being required.

The device that was involved in this incident was not installed properly and this is why the animal was able to pull the chain through the bars.

There was a social partner that given valium after the incident and is being introduced to a new social partner. There is a close watch on the whole room.

All of the foraging devices were removed from the cages within an hour of the incident. They were bought for the ARCF and were variably used but not consistently used until about 2 weeks before the incident.

There has been no indication that other facilities have had issues with this device, and will be discussed at the upcoming National Primate Center meeting. Most facilities used this device with Rhesus. Right now, the plan is to go back to the puzzle balls as the foraging device.

All enrichment devices are going through a committee that is looking at all caging and enrichment for a full analysis before being implemented in the facility with the animals.

Foraging is only one kind of enrichment. They also receive food, television, and radio as alternate forms of enrichment. The ideal is that the animals get a lot of variety and right now, to replace the foraging board, they are also getting paper to rip up.

**This has been reported to the USDA, OLAW, and AAALAC.**

## Other Business

- WaNPRC Updates – MM

- People's needs are just as important as the animal care so the PC has worked hard to make a lot of changes. There was too much overtime being done, however since bringing more people on board in order to spread out the work demands, overtime has decreased by as much as 200 hours a month (on average 100 hours per month). People are supported moment by moment and they aren't working so many hours which helps to avoid more mistakes due to people being tired. There are currently floating animal techs, and 8 vet techs on board which has helped reduce a lot of the burden.

There has been turnover some of which was due to natural turnover and some of them were due to human factors. People were not happy with their work environment. This has changed since STI has joined and now people feel more supported and they feel their voice is being heard. Turnover has decreased since then.

University of Washington  
April 19, 2018 IACUC Meeting Minutes

At the time of the dehydration incident, one person took care of one room morning and evening and since then a buddy system has been implemented so no one person is taking care of a single room. Now 2 people are looking at each room every day.

The entanglement was a surprise and has hurt the PC as a whole. The solution to avoid this in the future was to bring more eyes on target. There are numerous people in the PC that have years of experience altering devices and now these people have been added to a committee to address all things that are involved with animal caging in the Primate Center before anything is implemented.

Communications: There was typically a monthly meeting in the department of resources, but it has been expanded to an open forum both in person and remotely, with both people within DPR and those outside of DPR to offer suggestions and contribute in addition to hearing about everything from research projects and husbandry.

The work life balance includes decreasing overtime and that all personnel feel they have a voice; that they feel supported. The mentality of working 12 hours, 7 days a week is not the mentality that the PC wants to be the norm and is making sure that personnel know that their work life balance is important.

All personnel have opportunities for advancement and moving forward. The IT domain has been expanded to allow for further movement and opportunities. This is something that is being worked on across the board. New vets have been brought on board and more will be brought on board soon both at the Arizona Facility and at the UW Facility.

The PC is really working on everything and doing their best to ensure that they have the best team possible.

The elevator: Although it is disastrous when it goes down, however it is more reliable than other elevators. It has been scheduled for repair. There is an opportunity to trade with another elevator should it come up for repair. If it gets worse, it can be moved up in the queue.

#### **OAW Director's Report – STI (cont.)**

- **Metrics**

- **Adverse Events**

- Replies to a letter of counsel

There was an incident where 2 mouse pups were not properly euthanized. The PI took it very seriously and wrote a very nice response. The lab member had thought they were runts, but they were actually from a new litter. The lab member has been retrained by retaking the AUTS class. The PI met with the AV and the vet that handled the situation to discuss what can be done. The PI had communicated with their lab and discussed how they have been performing euthanasia. The PI has instituted a quarterly review of the protocol.

- 4196-01

Last month, a group of 8 adult mice (>28 days old) were tailed for genotyping. Upon examination by Vet Services, one mouse had bone exposure and was euthanized, two mice had mild hemorrhage and were treated with analgesics, and the remainder of the mice healed without incident. At the time, the technician did not realize that collection of tissue samples over 28 days of age was not approved on their protocol. When this error was identified, the group reported the incident to OAW. The group has since submitted an amendment to the protocol to include ear punch as an option for genotyping adult mice if needed in the future.

**This event has been reported to OLAW.**

University of Washington  
April 19, 2018 IACUC Meeting Minutes

o Cao Non-compliances

This group is developing tiny electronics to monitor the hearts of zebrafish. There was a previous non-compliance reported by this group in September 2017 for which a letter of reprimand was sent.

On 2/15/18, surgery certification was done for 2 of the personnel on the group. A month later, JM became aware that the lab members were accessing the P1 Fish facility which they shouldn't be able to do. They were working on procedures that weren't approved on the protocol. JM informed the students that these weren't approved and prevented them from doing the work. The group was also not properly performing post-operative procedures. GS asked that the lab member access to the facility be revoked.

Additionally, the surgical records were incomplete and did not match up with access card records (They signed off on post-op care but they didn't enter the facility).

The group was told by GS they couldn't do any unapproved work until they met with OAW.

They met with OAW, GS, JK, and JM to go over HoverBoard and make sure that all personnel understand how to check what is approved on the protocol.

All lab members have accessed to the protocol and know how to check what is approved. They will be more diligent about keeping good lab records. They will be meeting with MB every month until everything is resolved.

The students were clearly not getting the guidance and clearance they needed. They seem to be following the directions of the PI and if the PI says to do it, they do it. The group will continued to be watched by the facility staff. They are also on Vet Monitoring.

*MB read a letter from the PI. In it, the PI addresses all of the concerns raised above and is taking all of the responsibility on himself and addresses the necessary steps that have been taken to correct these issues.*

**Discussion:**

*There is disconnect which has resulted in non-compliances.*

*The students are mostly undergrad and 1 master student and are not to the point where they can perform these procedures proficiently and as a result have had a higher mortality rate than expected which is a big concern (mortality rate is currently about 38% - this is higher than what is in the protocol).*

*Since the last meeting with OAW, the students have been coming in every day. They seem to be going through the necessary checks.*

*The group is trying to move too fast. The students just have no direction and they really need a post-doc/lab manager.*

*If the protocol is suspended, the animals would be impounded and continued to be cared for by vet staff for an additional 30 days. They have no special strains of fish. They will not be able to use any money from their grant to support animal work.*

**JM left for further discussion and vote.**

University of Washington  
April 19, 2018 IACUC Meeting Minutes

*The meetings with MB have been very productive. The group now understands a lot more regarding HoverBoard.*

Motion was made and seconded: to send the PI a letter of reprimand telling him to take into consideration to not start any new experiments and come back next month and submit a formal detailed plan for correcting these issues since the protocol will be voted upon for potential suspension. Also ask the department chair and IO to attend the meeting.

Discussion: *The IO will consult be consulted regarding potential suspension of the protocol. The protocol could be suspended before the next meeting and the PI could come to the next meeting and explain why it should be reinstated. Can consider providing further recommendations to help the PI come up with a better plan. There would be a strong recommendation to hire a lab manager or grad student to manage the lab.*

*MB will convey the IACUC's concerns to the group and have the PI or even the whole group come to the next meeting. If the IACUC votes on suspension today, the protocol is suspended until the IO is consulted.*

*The big concerns are; personnel, animal welfare, and compliance.*

*Can reach out to the chair for additional over sight. It may be good for the department to be aware of the issues in order to provide additional support. Ask the department chair to attend the meeting next month.*

Vote: Approved with 13 members voting in favor, and 2 abstentions.

## JM Returned

### Attending Veterinarian's Report - ML

- Facility issues:

Humidity: Low humidity reported in our older facilities without humidity control.

Temperature and lights:

3/10/18 : There was a planned electrical power shut down for the building that affected HVAC for the whole building while electrical work was being done. Only three animal holding room temperatures got above 77 degrees (highest temp 80.2), all other rooms stayed between 73 to 76 degrees. But there was a more than 4 degrees variance in all rooms. In the three rooms that went above 77 degrees, they placed fans to manage the temperatures.

3/23/18 Lights failed to turn off in two NHP rooms. It was discovered at 9 pm and they were manually turned off.

4/8/18: Lights in this mouse room did not turn on at 6 am due to a faulty relay. This was repaired 24 hours later.

- Protocol Monitoring:

There are 18 active protocols on the veterinary monitoring program.

- Adverse event:

Protocol 4096-01

University of Washington  
April 19, 2018 IACUC Meeting Minutes

Between 4pm on March 13<sup>th</sup> and 9am on March 14<sup>th</sup>, approximately 1800 of 2000 juvenile pink salmon (about 1.5" long) died due to a suspected low oxygen event in a single flow-through tank on seawater system supply at an off-site federal facility.

The housing tank had stand-pipe drain grate openings that were large enough to let the small fish housed in this tank through. To prevent this from happening, the tank stand-pipe outlet was covered with a fine mesh screen. This screen had to be cleaned every other day to keep the outflow levels correct. If not cleaned, the tank effluent rate would be reduced but tank would not overflow. On the day the event happened, there was a regular maintenance backflush of the entire seawater system, which required the replacement of the drain screen twice in one day. To replace the screen, the incoming of seawater flow and air diffuser needed to be turned off to facilitate clear visualization into the tank and to make sure fish didn't get into the drain during this process. It is suspected that upon completion of screen cleaning and replacement, the water flow rate and aeration stone were not completely returned to the correct level for the number of fish in the tank (they were turned on and water and air were flowing). The stocking density within this flow-through seawater tank was high. This associated with the decrease in aeration and incoming seawater flow rate is what is suspected to have caused the deaths. No fish were submitted for necropsy for evaluation.

**Corrective measures to prevent this event from happening again.**

1. Split the fish into at least two tanks
2. Tanks will have drains with openings of the optimal size. Large enough to let any uneaten food out while keeping fish from being sucked up accidentally. This will make the need to modify the water flow rate and aeration flow unnecessary.
3. Periodic dissolved oxygen monitoring and recording within each tank
4. Possibly add a secondary side-drain system that would allow continued water outflow in the event that the main central drain becomes clogged.

Protocol 4249-01

One mouse was found dead in a cage of 3 mice on Monday April 2<sup>nd</sup>. There was no food in the hopper. After talking to the group, it was determined that on Friday March 30<sup>th</sup>, the group finished behavioral experiments on 6 cages of mice. The mice had been on restricted feed until Friday, with daily weight monitoring. Two lab members removed the "Do Not Feed" signs from the cages and the special service request. They then put food in the cages and returned them to the rack. They must have accidentally failed to add food to one of the 6 cages and the animal tech also failed to notice that one cage did not have food. The remaining two mice recovered uneventfully. We discussed the incident with the group and their laboratory members were retrained (the PI instructed them to always recheck once the cages are back on the rack) and the animal tech involved was also retrained.

**This has been reported to OLAW.**

Motion was made and seconded: to send a letter of counsel to the group

Discussion: *None.*

Vote: Approved with 16 members voting in favor.

University of Washington  
April 19, 2018 IACUC Meeting Minutes

Protocol 4406-01

On 3/21/2018, the room temperature was increased per request from the PI. The requested temperature was 86F. The facility manager sent a message to OAW asking if the PI was approved for this increase, but went ahead and started increasing the temperature prior to hearing back from OAW. The gradual increase started at 9am from its original set point of 72F and reached 82.75 the next day, 3/22 at 10am. The facility manager then heard back that this was not approved in this manner on the protocol and the temperature was returned to normal by 1 pm on the 22<sup>nd</sup>. The facility manager has been retrained not to respond to request to change environmental parameters on an “emergency” basis, but to assure that any variations are confirmed as being part of the approved IACUC protocol prior to them happening. No illness was reported and no animals other than those on the one PIs protocol were in the room during this increase in temperature. No experiment was performed. The protocol is approved to house at these higher temperatures in metabolic chambers in a very prescribed manner, but not to house at higher temperatures at the room level.

**Member left the Meeting.**

Protocol 2183-02 A cage of 2 mice were reported for weakness and dehydration on 01/27/18. The water bottle in the cage was flipped upside down in the cage at the time the mice were identified. One of the 2 mice in the cage presented clinically compromised, and was subsequently euthanized due to poor clinical condition and prognosis for recovery. Stress associated thymic and gastrointestinal changes were identified on gross necropsy and histology, with dehydration being the likely cause of this mouse’s clinical signs. The remaining mouse in the cage was showing mild clinical signs on initial presentation, and recovered with supportive care.

Per the group member, these mice were moved from a housing room to a behavioral/housing room on 01/25/18, when one of this cage’s littermates underwent surgery. None of the mice in the cage with the upside down water bottle had had any experimental procedures performed. The cause of the flipped water bottle is believed to be due to an oversight by a new lab member when moving the cage. The researcher overseeing the group member as well as the facility manager retrained this individual.

**This has been reported to OLAW.**

Motion was made and seconded: to send a letter of counsel to the group

Discussion: *None.*

Vote: Approved with 14 members voting in favor, and 1 abstention.

**Member returned.**

- **HBA Subcommittee:**

The HBA committee met this month and discussed incidents of morbidity and mortality in USDA species as well as concerns raised by individual IACUC members. I would urge you to look at the minutes for further insight.

## Protocol Review

- AMEND201800384 (2326-09) – A16230 Repair Surgery and A16229 Repair Surgery – **JFI**
  - The goal of the proposed work is to establish a protocol for noninvasive vagus nerve stimulation (VNS) that will augment targeted neuroplasticity and enhance cognitive performance. The knowledge and technology generated by this project will aid in the development of neurorehabilitation treatments after stroke and brain injury.  
**A16230** and **A16229** are both 5 year old male rhesus macaques. They both underwent their first surgery in October 2017 to implant a portion of the head stabilization device and a vagus cuff. In December 2017 they both underwent surgery for a cortical implant and the 2<sup>nd</sup> portion of their head stabilization device. In February of this year, they both underwent a repair surgery to repair their vagus nerve cuff, which were both non-functional. The group has been actively working to optimize the vagus nerve cuffs, including using cuffs with a smaller diameter and sealing the ends of the cuffs to reduce the potential for leakage of current. The wires from the vagus nerve cuffs are tunneled under the skin to the animal’s cranial implant, and after these repair surgeries in February both animals experienced some erosion of the skin over the wires.  
In **A16230**, the wires became exposed and broke. This animal is still receiving antibiotics, but the erosion site has healed. The group is requesting 2 repair surgeries for this animal, one to repair the connection between the vagus nerve cuff and the cranial implant, and the other to have “banked”.  
In **A16229**, the wires became exposed but did not break, and the animal healed with clinical treatment. Another erosion site did develop in this animal, and the animal underwent a clinical surgery 2 days ago. For this animal, the group is requesting one repair surgery to have “banked”.  
Clinically: Their records reflect that both animals are bright, alert, and response with a normal appetite.  
Behaviorally: Both animals have minor alopecia. These animals are long-term social partners and normally pair-housed, although they are currently separated due to **A16229’s** recent surgery.

Motion was made and seconded: to approve the repair surgeries as written.

Discussion: *any discussion/changes/notes*

Vote: Approved with 15 members voting in favor, and 1 abstentions.

- 4316-01 – A16226 Repair Surgery – **JFI**
  - The objective of this research is to characterize neural signals that support memory formation.  
**A16226** is an almost 9 year old female rhesus macaque. She underwent her first surgery on November 1 2017 to implant a headpost, followed by implantation of 2 recording chambers in January 2018. A repair surgery was used in February for a “brow lift” because her brow skin was obstructing her vision. She underwent a craniotomy in March, followed by implantation of a semi-chronic electrode Microdrive on April 3<sup>rd</sup>. A repair surgery, which was approved by the IACUC last month, was used last week to remove the anterior drive which had failed. The group is requesting 2 repair surgeries, one to replace the anterior drive and one to have “banked”.  
Clinically, she appears to have recovered well from her previous surgeries. She is currently receiving antibiotics after a positive culture during her most recent surgery,

University of Washington  
April 19, 2018 IACUC Meeting Minutes

but according to her record she has remained bright, alert, and responsive, with normal appetite and stool.

Behaviorally, she was recently referred to BMS for alopecia and she has been observed to engage in infrequent over-grooming. She is currently being monitored by BMS and receiving extra enrichment. She is currently single-housed due to incompatibility, but BMS is looking for a compatible social partner.

Motion was made and seconded: to approve the repair surgeries as written.

Discussion: *any discussion/changes/notes*

Vote: Approved with 15 members voting in favor, and 1 abstentions.

- 4146-01 – A14232 Repair Surgery – **JFI**

- The goal of this group's work is to develop a viable implantable vestibular prosthesis to help patients with dizziness, balance and orientation problems to regain their mobility and active lives.

- **A14232** is 6 year old male rhesus macaque. He received his first surgery on this protocol in September 2015 to implant an eye coil and head stabilization lug. His head lug was removed in a clinical surgery in December 2015, and his approved repair was used in January 2016 to replace it. He received a vestibular implant in February 2016. His rear head lug sloughed again in December 2017 and repaired in a clinical surgery in early January. They are requesting one repair surgery for this animal to have "banked". In terms of the sloughed head lug, the animal's experimental plan involves implantation of a recording chamber and the group is planning to use a chamber that has a connected head lug, eliminating the need to re-implant a separate head lug. They are currently working on an amendment to clarify the different types of recording chambers that animals may receive on this protocol.

Clinically, the animal seems to be healthy.

Behaviorally, BMS reports that this animal previously engaged in some locomoter stereotomy, last reported in July 2017. He is socially housed in grooming contact with a long-term social partner. Previous attempts by BMS at pair-housing with the same partner were not successful, so an exemption was requested to keep them in grooming contact.

Motion was made and seconded: to approve the repair surgeries as written.

Discussion: *any discussion/changes/notes*

Vote: Approved with 16 members voting in favor.

- 4146-01 – Z11090 Repair Surgery – **JFI**

- **Z11090** is an almost 7 year old male rhesus macaque. He received his first surgery on this protocol in May 2016 to implant an eye coil and head stabilization lug. His first approved repair surgery was used later that same month to repair one his lugs, which hadn't healed well. A clinical surgery was performed the following month, June 2016, to remove his front lug, which has become loose. When that lug was removed they had to cut the eye coil connector, so another approved repair surgery was used in August 2016 to repair the eye coil. Unfortunately, that new eye coil was non-functional after surgery, which the group reports is a very unusual event. Another repair surgery was

University of Washington  
April 19, 2018 IACUC Meeting Minutes

performed a month later to remove that eye coil and implant one in the other eye. In November 2016 this animal received his vestibular implant. Recently, the group reports that a small piece of one of his head lugs broke, which happened to be the part containing the eye coil connector, rendering the eye coil again non-functional (the rest of the head lug is still intact). The group is requesting 2 repair surgeries, one to repair the eye coil and a second to have “banked”.

Due to the history of eye coil failure in this animal I asked them about their experience with the longevity of eye coils, and the group responded that “If an eye coil is placed and heals well, it is unlikely that the coil would fail on its own. It is more likely that the coil gets nicked during wound margin maintenance or the lug implant fails (which the eye coil is connected to).” When reviewing the surgical history for other animals on this study, this frequency of eye coil repairs does appear to be an exception, not the norm.

Clinically, the animal seems to be healthy.

Behaviorally, this animal has minor alopecia. He is currently in grooming-contact with a long-term social partner, and BMS is planning to attempt pair-housing the coming weeks.

Motion was made and seconded: A motion to approve the repair surgeries as written.

Discussion: *Where can you go to observe these eye coils? Could set up a presentation by FRR to show what the different hardware parts that are used in NHP neuroscience studies.*

Vote: Approved with 16 members voting in favor.

- 4146-01 – A10256 Repair Surgery – **JFI**

- **A10256** is an 11 year old male rhesus macaque. He received his first surgery on the protocol in February 2011 to implant an eye coil and head lugs, followed by implantation of a recording chamber and a vestibular implant later that same year. In August 2013 a clinical surgery was performed to remove his back head lug. About a year later, another one of his head lugs sloughed. In September 2015, his approved repair surgery was used to repair his recording chamber and the back head lug. In January of 2017 his chamber sloughed, and a clinical surgery was performed in June 2017 to remove the remaining bone screw and acrylic and close the site. The group is requesting 2 repair surgeries, one to replace the chamber and repair the animal’s rear head lug, and one to have “banked”.

The group reports that this animal is extremely valuable to their research and to longevity testing of their device due to the length of time he has been on study with a viable vestibular implant.

Clinically, the animal seems to be healthy and the site of his previous chamber appears to have healed well.

Behaviorally, BMS reports that this animal previously engaged in non-injurious self-biting but that has not been reported since 2011. He is currently being monitored by BMS for some locomoter stereotypy. He is socially housed with a long-term social partner.

*Chambers are all different across protocols.*

*The IACUC could reach out and ask the group to look at the data of chamber size compared to the frequency of sloughing. A larger chamber will result in an increase in anchor points.*

University of Washington  
April 19, 2018 IACUC Meeting Minutes

Motion was made and seconded: A motion to approve the repair surgeries as written.

Discussion: *any discussion/changes/notes*

Vote: Approved with 15 members voting in favor, and 1 abstentions.

**Closing Business:**

The Meeting was brought to a close at 5:05 pm. The floor was opened to public comment.

**Table until next meeting**

**Standard Operation Procedures / Policies / Guidelines**

- Neuroscience Studies in Non-Human Primates Policy – **JS**

**Other Business**

- Review Plan for Standard Procedures – **AS**
- Harm Benefit Analysis Subcommittee Discussion - **LJE**