MEMBERSHIP OF THE INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

Date: October 30, 2017

NAME OF INSTITUTION: Utah State University

ASSURANCE NUMBER: A-3801-01

Chairperson Name, Title, and Degree/Credentials	Business Address, Phone, Fax, and Email of Chairperson		
Name: Ben Green	Address: USDA Poisonous Plant Research Laboratory 1150 East 1400 North Logan, UT 84321		
Title: Research Scientist- Poisonous Plant Research Lab			
Degree/credentials: PhD	Phone: (b) (6) (b) (6)	Fax:	Email: ben.green@ars.usda.gov

Name of Member/Code*	Degree/Credentials	Position Title	PHS Policy Membership Requirements**
Aaron Olsen	DVM, PhD, DACLAM	Director- LARC	IACUC Administrator/ Institutional Veterinarian
		(b) (6)	Scientist
			Veterinarian/Scientist
			Scientist
			Scientist
			Scientist
			Non-Scientist
			Non-Scientist/Non-Affiliated
			Ex officio
			Ex officio

*Names of members, other than the chairperson and veterinarian, may be represented by a number or symbol in this submission to OLAW. Sufficient information to determine that all appointees are appropriately qualified must be provided and the identity of each member must be readily ascertainable by the institution and available to authorized OLAW or other PHS representatives upon request.

**PHS Policy Membership Requirements:

Veterinarian - a veterinarian with direct or delegated program responsibility.

Scientist - a practicing scientist experienced in research involving animals.

Nonscientist - a member whose primary concerns are in a non-scientific areas (e.g. ethicist, lawyer, member of the clergy).

Non-affiliated member - a member who is not affiliated with the institution in any way other than as a member of the IACUC, and who is not a member of the immediate family of a person who is affiliated. This member is expected to represent general community interests in the proper care and use of animals and should not be a laboratory animal user. A consulting attending veterinarian may not be considered non-affiliated .

NOTE: Nonvoting members must be so identified

FACILITY AND SPECIES INVENTORY

Date: October 30, 2017

NAME OF INSTITUTION: Utah State University
ASSURANCE NUMBER: A-3801-01

Laboratory, Unit, or Building*	Gross Square Feet (including service areas)	Species Housed in Unit (use complete common names)	Approx. Average Daily Inventory
(b) (4)	13,244	Mouse, Hamster, Rat, Pigeon,	2000, 200, 250, 70
	31,483	Mouse, Rats, Guinea Pig, Hamsters, Goats, Swine	1000, 20, 20, 400, 5, <1, <1
	1,542	Snake, Newt, Salamander,	100, 20

*Institutions may identify animal areas in any manner, e.g., initials, ID number, etc. However, the name and location must be provided to OLAW upon request.

Institutional Animal Care and Use Committee

UtahState University

OFFICE OF RESEARCH AND GRADUATE STUDIES

01 June, 2017

TO: Mark McLellan, PhD. Vice President for Research
FROM: Institutional Animal Care and Use Committee
SUBJECT: Semiannual Evaluation of Animal Care and Use Program and Inspection of the Laboratory Animal Research Center (LARC) including Biology and the 650 Bioinnovations vivarium,
Period covered – 01 December 2016 – 31 May 2017

This represents the semiannual report of the Institutional Animal Care and Use Committee (IACUC), as required by the PHS Policy on Humane Care and Use of Laboratory Animals and as a condition of the institution's Animal Welfare Assurance on file with the Office of Laboratory Animal Welfare (OLAW) and USDA Animal Welfare Regulation, 9 CFR Chapter I, subchapter A, as applicable.

PHS Animal Welfare Assurance

The approval period for the Assurance is March 27, 2014 through February 28, 2018.
The Assurance number is A3801-01.

Institutional Animal Care and Use Committee

Dr. Benedict Green is the IACUC chair. His current appointment extends through July 2018.

We have received notification that following our response to the findings of the March 2016 AAALAC site visit we have received full ongoing accreditation.

It is the ongoing policy of the IACUC to include expand training information and exercises during IACUC meetings as well as offer opportunities for members to receive training at meetings and conferences, such as IACUC 101 and 201, by providing resources for travel and conference attendance.

Animal Use Protocols

Currently there are 104 animal use protocols for the above facilities.

Protocol exceptions to established IACUC policy approved by the committee are listed in the attachment.

Evaluation of the Animal Care and Use Program

5600 Old Main Hill Logan, UT 84322-5600 PH: (435) 797-8141 FAX: (435) 797-3834 . larc.usu.edu

The IACUC members used the "Semiannual Program Review and Facility Inspection Checklist" available from the Office of Laboratory Animal Welfare as a guide and tool in conducting its program review and facility inspection.
The Program Review evaluated the USU animal care program for adequacy in the areas of:
- Institutional Policies and Responsibilities
- Veterinary Care

The program review is an ongoing IACUC function. Portions of program review are conducted at each convened IACUC meeting. The program review for this period was completed April 18, 2017

The Laboratory Animal Research Center (LARC) and the 650 Bioinnovations vivarium (i.e. the USTAR Building) are managed under a single animal care program. The program and its facilities are currently fully accredited with AAALAC International. For accreditation purposes these units are administratively under the College of Science. Users of laboratory animals from all campus departments may utilize these facilities.

Inspection of Animal Facilities

The semiannual inspection of facilities occurred on March 16, 2017.

The Facility Inspections conducted by IACUC members evaluated USU animal care facilities for adequacy in the areas of:
- Terrestrial Animal Housing and Support Areas
- Cagewash
- Special Facilities: Aseptic Surgery
- Special Facilities: Procedure Areas, Non-survival Surgeries, Laboratories, Rodent Surgeries, Imaging, Whole Body Irradiation, Hazardous Agent Containment, Behavioral Studies

LARC, BIOLOGY & USTAR

LABORATORY ANIMAL RESEARCH CENTER (LARC):
Minor Deficiencies
- (b)(4) – Ceiling tiles were opened for maintenance
- (b)(4) – Lab; unused cylinder present

As previously reported, all cagewash activity is being performed at the 650 Bioinnovations building. The cagewash facility in the LARC is currently unused. If the opportunity presents itself the cagewash equipment will be removed and the cagewash space repurposed.

Biology:
Minor Deficiencies

- No deficiencies were noted

650 Bioinnovations (USTAR):
Minor Deficiencies

- (b) (4) Jimmy Johns box used for supplies
- No cage cards list the IACUC protocol number.
- – paper signs should be laminated
- – CO2 needs flowmeter
- – cardboard box needs to be removed
- – paper sign needs to be laminated

As of April 12, 2017 all deficiencies noted have been corrected.

Respectfully Submitted:

(b) (6)

B. Green, Chair

(b) (6)

A. Olsen, Attending Veterinarian

(b) (6)

(b) (6)

Attachment: IACUC Approved Exceptions:

UTAH STATE UNIVERSITY
REGISTRATION NUMBER: 87-R-0002
CURRENT IACUC EXCEPTIONS

Date	IACUC#	Exceptions	Animal Numbers
9/22/16	2667	Surgery on Hamsters in (b) (4) (not a dedicated surgery area)	160
9/15/16	2671	Multiple survival surgeries	17
9/21/16	2664	Multiple survival surgeries	27

01 December 2017

TO: Mark McLellan, PhD. Vice President for Research
FROM: Institutional Animal Care and Use Committee
SUBJECT: Semiannual Evaluation of Animal Care and Use Program and Inspection of the Laboratory Animal Research Center (LARC) including Biology, the 650 Bioinnovations vivarium (LARC 650), and Animal Welfare Act covered animals housed at the USU Animal Science Farm.
Period covered – 01 June 2017 – 30 November 2017

This represents the semiannual report of the Institutional Animal Care and Use Committee (IACUC), as required by the PHS Policy on Humane Care and Use of Laboratory Animals and as a condition of the institution's Animal Welfare Assurance on file with the Office of Laboratory Animal Welfare (OLAW) and USDA Animal Welfare Regulation, 9 CFR Chapter I, subchapter A, as applicable.

PHS Animal Welfare Assurance
The approval period for the Assurance is March 27, 2014 through February 28, 2018.
An Assurance Renewal request has been submitted to OLAW and the renewal results are pending.
The Assurance number is A3801-01.

Institutional Animal Care and Use Committee
Dr. Benedict Green is the IACUC chair. His current appointment extends through July 2018.

It is the ongoing policy of the IACUC to include expand training information and exercises during IACUC meetings as well as offer opportunities for members to receive training at meetings and conferences, such as IACUC 101 and 201, by providing resources for travel and conference attendance. Training in IACUC meetings includes the following: IACUC Member responsibilities; animal care and use programs, policies, and procedures; safety; and facility inspection policy and procedures.

Animal Use Protocols
Currently there are 107 animal use protocols for the above facilities.

Protocol exceptions to established IACUC policy approved by the committee are listed in the attachment.

Evaluation of the Animal Care and Use Program

The IACUC members used the "Semiannual Program Review and Facility Inspection Checklist" available from the Office of Laboratory Animal Welfare as a guide and tool in conducting its program review and facility inspection.

The program review was completed on September 22, 2017. The Program Review evaluated the USU animal care program for adequacy in the areas of:

- Animal Care and Use Program
- Disaster Planning and Emergency Preparedness
- IACUC Responsibilities
- IACUC Protocol Review- Special Considerations
- IACUC Membership and Functions.
- IACUC Training
- IACUC Records and Reporting Requirements
- Veterinary Care
- Personnel Qualifications and Training
- Occupational Health and Safety of Personnel
- Personnel Security
- Investigating & Reporting Animal Welfare Concerns

The review of veterinary care is further subdivided into reviews of:

- Clinical Care and Management
- Preventive medicine/Animal procurement & transportation
- Surgery
- Pain, distress, analgesia, and anesthesia
- Euthanasia
- Drug storage and control

The Laboratory Animal Research Center (LARC) and the 650 Bioinnovations vivarium (i.e. the USTAR Building) are managed under a single animal care program. The program and its facilities is currently fully accredited with AAALAC International. For accreditation purposes these units are administratively under the College of Science. Users of laboratory animals from all campus departments may utilize these facilities.

Inspection of Animal Facilities

The semiannual inspection of facilities occurred on September 11, 2017.

The Facility Inspections conducted by IACUC members evaluated USU animal care facilities for adequacy in the areas of:

- Terrestrial Animal Housing and Support Areas
- Cagewash
- Special Facilities: Aseptic Surgery
- Special Facilities: Procedure Areas, Non-survival Surgeries, Laboratories, Rodent Surgeries, Imaging, Whole Body Irradiation, Hazardous Agent Containment, Behavioral Studies

The inspections included an evaluation for adequacy in the following areas:

- Animal Care-Caging, environmental control, feeding, animal exercise and socialization, sanitation, records, security and emergency procedures.
- Animal Health-Veterinarian use, preventive medicine procedures, animal observation, disease surveillance, diagnosis and treatment, analgesic use, surgical procedures, euthanasia, carcass disposal and drug storage.
- Physical Plant- Housekeeping, sanitation of surfaces, animal separation by species and biological status, separation of animal rooms from lab, administrative and storage areas, and cages wash areas, HVAC systems, water supply and surgical facilities.

LARC, BIOLOGY & USTAR

Laboratory Animal Research Center (LARC):

Minor Deficiencies

- Cage wash, Ceiling panel needs to be replaces and the exhaust vent in ceiling needs to be cleaned.
- (b) (4) Diets placed in freezer by PI need additional labeling. PI will be contacted.
- (b) (4) Edge banding needed on melamine covered shelf to protect the wooden substructure.
- (b) (4) Appears to be an air leak around fire sprinkler head in ceiling. Instructed to seal air leak
- (b) (4) several ceiling tiles need replacement and an air filter need replacement
- (b) (4) Lid on trach can is needed
- (b) (4) Trash can needs a lid and uncoated wood present (all wood needs a coating such as paint)
- (b) (4) Unsecured gas tank (was secured immediately), dust under cabinets
- (b) (4) Light tube needs replacing, obviously defective
- (b) (4) procedure room, wooden handle on apparatus needs a coating or replacement, room was cluttered and needs organization, power bar by sink needs to be moved to prevent exposure to water.
- (b) (4) covers for trash cans needed.

Biology:

Minor Deficiencies

- (b) (4) no animals present.
- Contact information needs updating due to recent retirement
- 5 gallon buckets of substrate need covers, uncoated wood present (all wood needs a coating such as paint)
- (b) (4) Hatch in ceiling needs to be closed and the old wash sink needs replacement or removal

LARC 650:

Minor Deficiencies

- (b) (4) put a date on the enrichment food bag
- trach bag on floor remove
- put date on treat bag
- need a heap filtered vacuum
- uncovered garbage can

Animal Science Farm - AWA covered animals:

- No deficiencies noted

No significant deficiencies were noted. As of October 31, 2017 all minor deficiencies have been corrected.

Minority Views: None for this reporting period

Respectfully Submitted:

(b) (6)

B. Green, Chair

(b) (6)

A. Olsen, Attending Veterinarian

(b) (6)

Attachment: IACUC Exceptions:

CURRENT IACUC APPROVED EXCEPTIONS

Listed below are the current exceptions to animal care standard practices that have been reviewed and approved by the Utah State University IACUC for projects housed in facilities listed in the attached semi-annual report.

Protocol Approval Date	IACUC#	Exceptions
9/25/17	2667	Surgery on Hamsters In (b) (4) (not a dedicated surgery area)
9/15/15	2137	Non-pharmaceutical grade drugs
9/15/15	2150	Non-pharmaceutical grade drugs
8/9/17	2385	Non-pharmaceutical grade drugs
12/5/15	2171	Non-pharmaceutical grade drugs
10/18/17	2795	Multiple survival surgeries
10/18/17	2796	Multiple survival surgeries
3/9/17	2711	Multiple survival surgeries
12/6/16	2672	Multiple survival surgeries

Animals covered under USU IACUC protocol #2667 undergo survival surgery involving the surgical implantation of osmotic pumps, either alone or attached to intracranial cannulas, or involving laminectomy of the spine. Animals also undergo non-survival surgery associated with nerve conduction studies involving viral infection in the spinal cord. These animals are usually inoculated with viral pathogens prior to surgery, or occasionally may be inoculated with virus as part of the surgical event. Virus inoculated animals are not allowed outside of the Biosafety suite due to biosafety concerns. Therefore, the USU IACUC granted an exception to the rule requiring surgery be performed in the surgical suite, and allowed the procedure to be done within the animal room.

When surgery is conducted within the animal room separate areas of the room are designated as surgery preparation and post-operative recovery. The surgical procedure itself is conducted within a Class II Biosafety cabinet. The pre- and post-operative area and the biosafety cabinet where surgery occurs are all cleaned and decontaminated with surface disinfectant prior to beginning surgery. For survival surgeries animals are prepared for surgery following standard veterinary practices and aseptic technique is used throughout the procedures. Non-survival surgeries may not use aseptic or sterile supplies, but clean equipment and supplies are used throughout the non-survival procedure. Post-surgically, animals are kept warm and observed until fully awake before being returned to their home cage. The surgical procedures, pain management procedures, and pre- and post-operative care was developed by the USU Attending Veterinarian, and all surgical training of research staff involved is done under the direct supervision of the Attending Veterinarian.

It was the consensus of the USU IACUC that maintaining biosafety was paramount. The IACUC granted an exception to the rule regarding location of surgery after it had been assured that every reasonable effort had been made to ensure the welfare of animals undergoing surgery.

Behavioral studies involving animals covered under projects 2137, 2150, 2385, and 2171 are permitted to use non-pharmaceutical grade drugs for some aspects of their studies. This research involves the behavioral response of animals to drugs of abuse, and many of these drugs are not readily available in a pharmaceutical grade form. The IACUC has thus permitted the use of these drugs as a vital component of the research. If pharmaceutical grade drugs are available for compounds under study these are always used, and cost savings is not permitted as a justifiable reason for the use of non-pharmaceutical grade drugs.

In project 2795 transgenic goats with a propensity to develop atrial fibrillation may undergo multiple surgical procedures. The procedures may include attempts to induce atrial fibrillation, mapping of electrical activity of the heart, cardiac biopsy and possible pacemaker implant. Each procedure is a key component to the research goals of developing and characterizing a large animal model of atrial fibrillation which involves determining the nature and degree of susceptibility to atrial fibrillation stimuli that each individual animal may express. In each survival procedure aseptic technique is observed and animals are provided appropriate pre- and post-operative care.

In projects involving the production of transgenic goats and sheep the USU IACUC has approved multiple survival surgical procedures. These include projects Project #2672, 2711, and 2796. Transgenic animals are produced by implanting transgenic embryos into the uterus of recipient goats or sheep. Embryo transfer has a high failure rate. Any animal that does not have a pregnancy confirmed by ultrasound at 45 days post implant may undergo one additional implant procedure. This was approved by the IACUC due to the importance of having appropriate recipients and the surgical procedure was judged to be very rapid and involve minimal tissue handling. If no pregnancy occurs after a second implant procedure no further attempts at embryo transfer can be attempted, although the animal may be retained for natural breeding.