

# The University of North Carolina at Chapel Hill

D16-00256 (#A3410-01)

## Animal Welfare Assurance for Domestic Institutions

*I, Terry Magnuson, as named Institutional Official (IO) for animal care and use at The University of North Carolina at Chapel Hill (UNC-CH), provide assurance that this Institution will comply with the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals (Policy).*

### I. Applicability of Assurance

This Assurance applies whenever this Institution conducts the following activities: all research, research training, experimentation, biological testing, and related activities involving live vertebrate animals supported by the PHS, DHHS, NSF, and/or NASA. This Assurance covers only those facilities and components listed below.

- A. The following are branches and components over which this Institution has legal authority, included are those that operate under a different name:

*School of Medicine, Gillings School of Public Health, School of Dentistry, Eshelman School of Pharmacy, College of Arts and Sciences, and the UNC-CH Institution of Marine Sciences (Morehead City, NC), UNC Nutrition Research Institute at Kannapolis, NC*

- B. The following are other institution(s), or branches and components of another institution:

*TransViragen, Inc.*

*Work conducted by the UNC-CH Animal Models Core (AMC) is contracted to TransViragen, Inc. The AMC is part of the UNC-CH program and the relationship of UNC-CH with TransViragen is detailed in the Master Service Agreement with TransViragen, Inc. A TransViragen employee has an appointment as UNC-CH adjunct faculty and serves as the PI of the AMC and all associated animal use protocols. All AMC protocols are reviewed by the UNCCH IACUC. All animal work is conducted in UNC-CH animal facilities. All animals are housed in the UNC-CH facilities and are owned by UNC-CH and personnel working with animals in the AMC are covered under the UNC-CH occupational health program and adhere to UNC-CH animal care program stipulations.*

### II. Institutional Commitment

- A. This Institution will comply with all applicable provisions of the [Animal Welfare Act](#) and other Federal statutes and regulations relating to animals.
- B. This Institution is guided by the "[U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training](#)."
- C. This Institution acknowledges and accepts responsibility for the care and use of animals involved in activities covered by this Assurance. As partial fulfillment of this responsibility, this Institution will ensure that all individuals involved in the care and use of laboratory animals understand their individual and collective responsibilities for compliance with this Assurance, and other applicable laws and regulations pertaining to animal care and use.

- D. This Institution has established and will maintain a program for activities involving animals according to the *Guide for the Care and Use of Laboratory Animals* ([Guide](#)).
- E. This Institution agrees to ensure that all performance sites engaged in activities involving live vertebrate animals under consortium (subaward) or subcontract agreements have an Animal Welfare Assurance and that the activities have Institutional Animal Care and Use Committee (IACUC) approval.

### III. Institutional Program for Animal Care and Use

- A. The lines of authority and responsibility for administering the program and ensuring compliance with the PHS Policy are as follows:

*Kevin M. Guskiewicz, Chancellor, is the chief executive officer for the University of North Carolina at Chapel Hill. Terry Magnuson, Ph.D., Vice Chancellor for Research (VCR), has the Chancellor's delegated authority to serve as the Institutional Official (IO). Dr. Magnuson reports to the Chancellor through the Provost and Executive Vice Chancellor, Robert Blouin. Dr. Magnuson maintains an active laboratory and works with research animals. In the event of a conflict of interest pertaining to the animal care program, Dr. Magnuson will recuse himself and the Provost will sign for the IO.*

*Roland Tisch, Ph.D., Professor of Microbiology and Immunology, chairs the Institutional Animal Care and Use Committee (IACUC).* (b) (6)

(b) (6) *The IACUC Chair, representing the IACUC, has an open and direct line of communication with the IO. Dr. Tisch has the authority to meet directly with the IO at any time. IACUC deliberations are directed to Dr. Magnuson.*

*Craig Fletcher, D.V.M., Ph.D., Professor in the Department of Pathology, Associate Vice Chancellor and Director of the Division of Comparative Medicine (DCM), is the veterinarian responsible for campus wide animal care and use and serves on the IACUC. Dr. Fletcher reports administratively and on all compliance matters to the VCR/IO. There exists an open and direct line of communication between Dr. Craig Fletcher and the IO. The DCM Assistant Operations Directors, animal facility management, report to Dr. Fletcher.*

(b) (6)

(b) (6)

(b) (6) *The OACU Director coordinates all IACUC activities and works closely with the IACUC Chair, Vice Chair, AV, and Office of the VCR.*

- B. The qualifications, authority, and percent of time contributed by the veterinarian(s) who will participate in the program are as follows:

1) Name: *Craig Fletcher*

Qualifications

- Degrees:

- *D.V.M., University of Florida 1999; Laboratory Animal Medicine Postdoctoral Fellowship Johns Hopkins University School of Medicine 1999-2005; Ph.D., Johns Hopkins University 2005; Postdoctoral Fellowship in Vascular Biology, Johns Hopkins University 2006; Diplomate ACLAM 2008*

- Training or experience in laboratory animal medicine or in the use of the species at the institution:

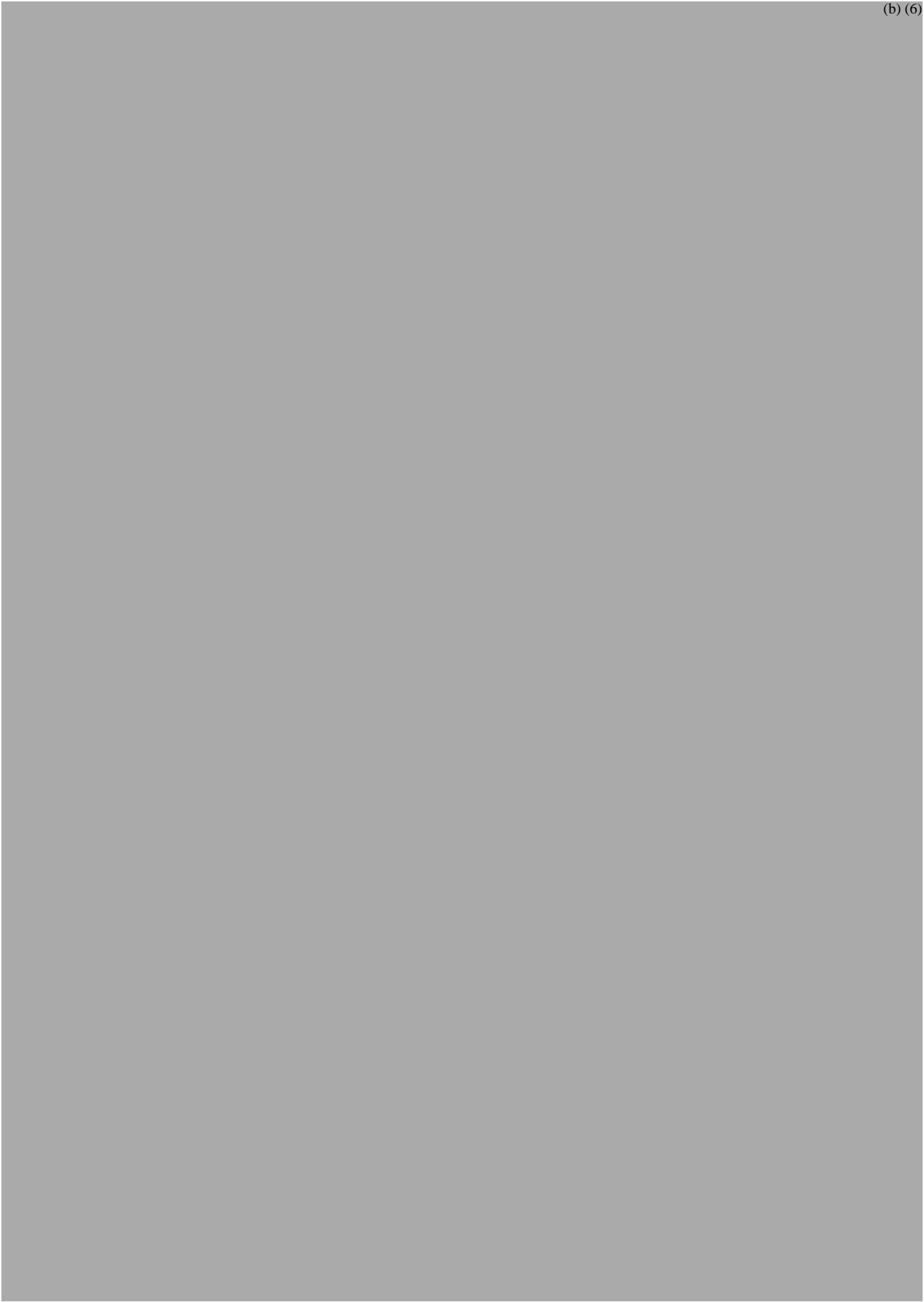
- *18+ years' experience in laboratory animal medicine, pathology, and a Clinical Veterinarian.*

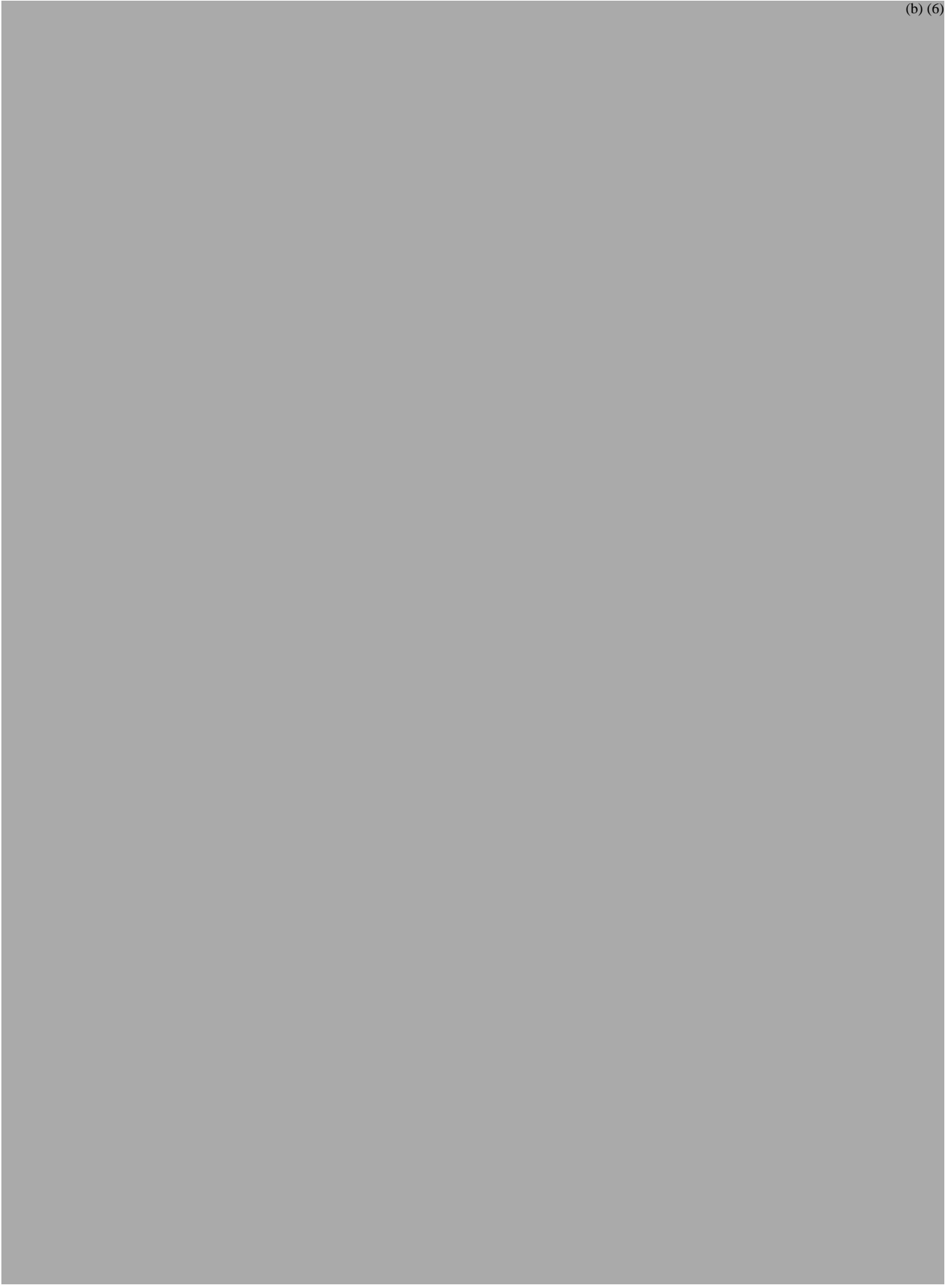
Responsibilities/Authority:

*Dr. Fletcher has direct program authority and responsibility for the Institution's animal care and use program as Attending Veterinarian (AV), Assistant Dean for Animal Research Resources, and Director of the Division of Laboratory Animal Medicine including access to all animals.*

*Time contributed to program: Dr. Fletcher is a full-time employee and devotes 80% of total time to the animal care and use program and 20% of his time to collaborative research. His lab is investigating the mechanisms by which platelet activation mediates inflammation. He has a post-doctoral fellow and shares a technician within the McAllister Heart Institute. Lastly, he collaborates with various investigators in studies involving laboratory animal diseases, vivarium management, environmental enrichment and behavior, and new and improved models of human disease (e.g. Collaborative Cross). He serves as a primary IACUC member.*

(b) (6)







- C. The IACUC at this Institution is properly appointed according to PHS Policy IV.A.3.a. and is qualified through the experience and expertise of its members to oversee the Institution's animal care and use program and facilities. The IACUC consists of at least 5 members, and its membership meets the composition requirements of PHS Policy IV.A.3.b. Attached is a list of the chairperson and members of the IACUC and their names, degrees, profession, titles or specialties, and institutional affiliations.

*Please note that the individual serving as the Alternate Non-scientist, position #5 has a Ph.D. in Philosophy. They serve as a Professor of Philosophy and Ethics. Their role at the University is an Ethicist and they consider themselves an outsider to research and research endeavors.*

D. The IACUC will:

- 1) Review at least once every 6 months the Institution's program for humane care and use of animals, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual program reviews are as follows:

*Every six months an IACUC subcommittee (consisting of the IACUC Chair and Vice Chair, at least two other IACUC members, Director of the OACU, the AV or DCM veterinary representative, EHS representative, the IO [and/or his representative], the Senior Associate Vice Chancellor for Research, and OACU staff members) meets to review the Animal Care and Use Program. All IACUC members receive the Semiannual Program Review agenda and are invited to attend. Meeting materials are made available to IACUC members prior to the meeting.*

*The Chair leads the meeting and uses an expanded version of the OLAW Program and Facility Review Checklist consistent with the Guide 8th edition. The agenda includes all aspects of the OLAW Checklist, including the University Disaster Plan, as well as additional, institution specific items. The AV presents aspects of veterinary care, husbandry, and hands-on training. OACU staff review administrative processes, grant congruency information, IT improvements, personnel qualifications and training certification, results of semiannual inspections, as well as provisions for reviewing and investigating concerns involving animal care and use. EHS representatives review handling of hazardous agents and occupational health issues pertaining to animal handlers. The IO provides administrative updates. At the next scheduled IACUC meeting attended by a quorum of the IACUC, the Chair presents a summary of essential points discussed at the IACUC subcommittee meeting. Members vote whether to accept the recommendations of the subcommittee.*

*In addition, about half of each monthly IACUC meeting agenda involves review and discussion of programmatic issues.*

- 2) Inspect at least once every 6 months all of the Institution's animal facilities, including satellite facilities and animal surgical sites, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual facility inspections are as follows:

*Throughout each six-month period on a regular schedule, the IACUC performs semiannual inspections of DCM facilities, investigator laboratories where animal procedures and surgeries are conducted, and satellite housing facilities. Each active area receives an inspection every 6 months. Only facilities which have been inactive (no animals or no procedures) during the previous 6 months are exempted from review. An expanded version of the OLAW inspection checklist consisting of essential elements as well as additional, institutional-specific items is used to conduct the inspections. All IACUC members are invited to participate in inspections and asked to sign up for inspection slots. No member who wishes to participate is excluded. All IACUC members receive an electronic copy of the Semiannual Program Review and Facility Inspection Report a week prior to the meeting. For any facility or laboratory inspection involving USDA-regulated species at least two voting IACUC member participate.*

*DCM Animal Facility Semiannual Inspections* - conducted every 6 months with a minimum of two voting IACUC members (including an EHS IACUC representative as well as a DCM veterinarian), OACU members, and DCM operation and facility managers.

*Investigator Laboratory Semiannual Inspections* – conducted in laboratories approved for Animal Procedural Space Exceptions and where survival or non-survival surgery, pain category E, aversive conditioning, or major procedures are performed. Two voting IACUC members (one being a veterinarian) accompany the OACU Education & Oversight (E&O) on lab visits involving a USDA-regulated species to ensure adequate record review and oversight. During most DCM facility inspections, one of the IACUC team members accompanies the E&O on investigator laboratory inspections. During the inspection, E&O leads the discussion with the laboratory members to review the procedure(s), status of animal handler training and certification, enrollment in occupational health, approved anesthetic, analgesic and euthanasia agents (pharmaceutical grade, dose, route, frequency, expiration, and security). E&O uses a laboratory inspection checklist combining OLAW and institutional requirements to guide the inspection.

*Satellite Inspections* – investigator-maintained housing areas (i.e., Satellite Facilities) are inspected at least semiannually. The focus of the satellite inspection is animal care, maintenance of husbandry records, and physical plant issues. A checklist combining OLAW and institutional requirements is used.

Procedural Observations – conducted in labs performing survival or non-survival surgical procedures. Laboratory personnel are observed every three years or more frequently if a new surgical procedure is added or there are new personnel performing the procedure.

*Investigator Laboratory Informational Visits* (for labs performing minor procedures such as injections, blood withdrawal, and euthanasia) - the focus is on education and updating the laboratory on IACUC Standards and procedures. The same inspection checklist used for the semiannual inspections guides the discussion.

- 3) Prepare reports of the IACUC evaluations according to PHS Policy IV.B.3. and submit the reports to the Institutional Official. The IACUC procedures for developing reports and submitting them to the Institutional Official are as follows:

*How the IACUC develops, approves, and submits the semiannual reports of the program review and facility inspection to the IO*

*The UNC-CH Animal Care Program adheres to the PHS Policy, Animal Welfare Act and USDA Regulations, and the Guide 8<sup>th</sup> edition. The E&O team records members' comments during inspections, compiles comments and prepares the individual inspection reports. At each monthly IACUC meeting, members receive copies of the DCM facility inspections conducted that month and E&O provides the report and presents a summary of investigator laboratory*



*inspections resulting in potential deficiencies. The IACUC determines whether the identified deficiency designations of minor or significant are correct and determines a schedule and plan for correcting any outstanding deficiencies.*

*At the end of each 6-month cycle, OACU staff compile the inspection reports conducted during the past 6 months into the Semiannual Facility Inspection Report for IACUC review during the Semiannual Animal Care Program Review. The IACUC Semiannual Animal Care Program Review subcommittee meets approximately a week prior to the full IACUC monthly meeting to review the program and facility report. At the next meeting attended by a quorum of the IACUC, the Chair provides a summary of the subcommittee's deliberations. A majority of IACUC members sign off on the semiannual report either in person or electronically. The final approved Semiannual Animal Care Program Review and Facility Inspection report is delivered electronically to the IO with a cover letter which summarizes findings and recommendations, details about minor and significant changes, the animal program review, and includes a current IACUC membership list.*

#### How the IACUC identifies and approves departures from the PHS Policy and the Guide

*The IACUC Animal Care Application (ACAP) form has a section devoted to procedures that fall outside of institutional, regulatory, or Guide standards – Exception Requests. In this section of ACAP, the investigator must state the procedure/issue requested, the rationale for allowing it, and the scientific or welfare justification. Requests are primarily reviewed by FCR. The IACUC has a list of a few commonly requested exceptions that can be handled by DMR. The IACUC approved an expansion of this list during the COVID-19 pandemic. The IACUC uses the OLAW flow chart to evaluate each of these procedures/issues to determine whether they represent departures from the PHS Policy, AWA/USDA Regulations, or the Guide. The institution does not currently have any approved departures from the Guide, only approved performance-based standards and Guide exceptions.*

#### How the IACUC identifies and corrects deficiencies

*Potential deficiencies are identified at the time of inspections, during the monthly IACUC meeting, or at the semiannual program review. During inspections, possible deficiencies are noted by IACUC inspectors and discussed with the person in charge of the laboratory or facility to ensure that the team's assessment of the situation is accurate. A significant deficiency is defined as one which is or may be a threat to the health or safety of animals or humans such as inoperable HVAC, electrical or watering systems, situations such as natural disaster, and unsecured gas cylinders. Generally, a minor deficiency refers to a problem for which an immediate solution is not necessary to protect life or prevent distress (e.g., peeling, chipped paint, missing cage card). Deficiencies deemed to be significant by the inspectors are handled expeditiously and are either corrected immediately or a tentative timeline for correction is established. E&O prepares a draft report of inspection findings. The PI is asked to provide a response and plan of correction. The draft report, which includes all potential deficiencies, is presented to the IACUC at the next monthly meeting.*

#### Schedule and plan for correcting deficiencies

*Reports distinguish significant deficiencies from minor deficiencies and contain a reasonable and specific plan and schedule with dates for correcting each deficiency. Investigators are typically given two weeks to respond in writing to the report and correct any deficiencies or request a delay in correction time. Should any outstanding or uncorrected deficiencies exist or if minor or significant deficiencies involve resources or a period of time to resolve, the IACUC deliberates and determines a reasonable and specific plan and schedule with dates for correction which are included in the final report to the IO. A significant deficiency remaining uncorrected beyond the scheduled correction date would be reported in writing within 15 business days by the IACUC, through the IO, to the appropriate federal regulatory agency and to any federal agency funding that activity.*

#### Minority views

*The institution maintains records of minority views expressed (1) as recommendations to the IO and/or (2) during semiannual inspections. Any minority views are included in the Annual Report to OLAW. The report also indicates if there are no minority views.*

- 4) Review concerns involving the care and use of animals at the Institution. The IACUC procedures for reviewing concerns are as follows:

Mechanisms that facilitate/enable individuals to report concerns:

*To increase awareness of the reporting mechanism, the IACUC posts 'Reporting Animal Welfare Concerns' or 'Animal Protocol Noncompliance' fliers in prominent locations in DCM animal facilities, investigator laboratories where animal work is conducted, and on the IACUC website. The flier includes instructions on how and to whom to report a concern. Multiple points of contact (email, website, office locations, and phone numbers) are provided including the IACUC and OACU, the University Research Compliance Officer, Office of the VCR, and the Ethics Point (an anonymous reporting service). The reporting process allows for anonymity, compliance with applicable whistleblower policies, non-discrimination against the concerned or reporting party, and protection from reprisal.*

How the IACUC reviews reported concerns:

*Concerns and self-reports are initially triaged by the OACU and OACU Director. The Principal Investigator (PI) or unit involved is asked to provide a written response regarding the allegation. OACU sends an email notification regarding the concern, with all identifying information redacted, to the IO, AV, Office of University Counsel, University Research Compliance Office, and IACUC Chair. OACU sends an email containing a summary of the information gathered and the PI's written response (with identifying information redacted) to the Animal Concern Subcommittee (ACS), a designated IACUC subcommittee responsible for reviewing animal concerns and making recommendations to the full IACUC. The ACS, which consists of the IACUC Chair and Vice Chair, the AV, OACU Director, and several other IACUC members, provide their recommendations and/or further questions for investigation.*

*OACU prepares Part 1 of the IACUC Animal Concern Report (ACR). ACR Part 1 summarizes the following: 1) Complaint/Allegation; 2) Steps Taken during Allegation; 3) Pertinent Information Provided by PI; 4) Detail for Each Allegation; and 5) Conclusions and Subcommittee Recommendations. Part 1 is sent to the ACS, PI, and the same individuals noted above for the initial email notification. In addition, if the ACS has recommended that the issue is reportable, a verbal report is made to OLAW and/or USDA. Part 1 is then provided to all IACUC members prior to the next convened meeting. The IACUC reviews the report and ACS recommendations, deliberates, makes any modifications it deems necessary, and votes whether to accept the report and close the concern or to delay final action until a later time.*

How the IACUC reports concerns and relates findings and recommendations to the IO:

*After receiving all necessary input and following up on any requests from the IACUC, OACU prepares a final letter which, if reportable to OLAW, is edited for clarity and conciseness by UNC-CH University Counsel. Once deemed acceptable for release, the final letter is provided to the IO for review and signature. The signed letter is sent to the PI, AV, University Counsel, University Research Compliance Officer, IACUC Chair, and OACU Director. OLAW receives the final letter if the project is federally-funded or the issue is of a programmatic nature.*

- 5) Make written recommendations to the Institutional Official regarding any aspect of the Institution's animal program, facilities, or personnel training. The procedures for making recommendations to the Institutional Official are as follows:

*Every six months following the Semiannual Animal Program Review, the IACUC submits to the IO the Semiannual Animal Program Review and Facility Inspection Report along with an accompanying letter summarizing the findings and any required action items. The IACUC Chair, the OACU Director, and the Senior Associate VCR (AVCR) meet with the IO as*

*necessary and at least twice a year to review programmatic issues. The DCM director meets with the IO weekly to review the animal care program. The OACU Director meets with the Senior AVCR bi-weekly. In addition, the IO receives all IACUC monthly meeting minutes, all ACRs and all official informational memos that the IACUC sends to investigators and research personnel using animals.*

- 6) Review and approve, require modifications in (to secure approval), or withhold approval of PHS-supported activities related to the care and use of animals according to PHS Policy IV.C.1-3. The IACUC procedures for protocol review are as follows:

#### How protocols are received

*The IACUC online Animal Care Application (ACAP) form is required for all activities proposing to use live vertebrate animals. IACUC approval must be obtained before any experimentation or teaching is initiated. PIs submit applications electronically through the ACAP system.*

#### The pre-review or initial screening process

Upon ACAP submission, OACU staff notifies the following parties to initiate the review/consultation process:

- *DCM Veterinarian – consults with the PI regarding issues that need attention.*
- *EHS reviewers – review hazards and identify the need for additional chemical, biological, or radiological hazard forms. Check for the use of recombinant DNA, viral vectors, and/or transgenic animals which requires Institutional Biosafety Committee (IBC) review and approval and verify lab safety plans and associated items are submitted and complete.*
- *OACU Administrative staff – add applications to the upcoming IACUC meeting agenda; review online personnel training items (e.g., Research Registration Profile, Occupational Health Animal Handler form, Laboratory Worker Registration, and IACUC and DCM Orientations); identify missing forms and attachments; and verify that frequently overlooked items are complete and/or updated.*
- *OACU Education and Oversight staff – review hands-on training and verify personnel listed as handling animals have received the appropriate training/certifications for the techniques they will perform. Confirm that minor procedural items conform to IACUC guidelines and standards.*
- *OACU Director – Assists IACUC Chair in determining if DMR may be appropriate. Assists Chair with communicating assignment of primary reviewers.*

*Comments and concerns from these pre-reviewers are compiled and entered into ACAP. PIs are contacted to address administrative clarifications and minor items prior to the review date. All other items remain in ACAP as unresolved comments until assigned reviewers confirm these have been adequately addressed by the PI during the post-meeting process.*

#### How members are notified

*The principal method of reviewing new or continuing applications historically has been by FCR in a convened meeting. Over the past several years and during the pandemic, the number of applications reviewed by DMR have increased. Approximately two weeks before the IACUC meeting the primary reviewers are notified by email of their assigned applications and provided directions to access in ACAP.*

*DMR is used for time sensitive applications, emergency situations, straight forward applications and continuation applications which have been in place for many years. For applications suggested for DMR, the full IACUC is alerted by email, given directions to access and review online, and is reminded that any member may submit concerns and/or call for FCR.*

#### How materials are distributed to members

*One week prior to the IACUC meeting, OACU electronically sends instructions to all IACUC members about how to access meeting materials. A day before the meeting, IACUC members receive updated meeting materials. When meetings are held on campus, OACU provides laptops and memory sticks loaded with all documents to be reviewed.*

#### How meetings are conducted

*The IACUC meets as often as necessary to discuss programmatic issues and review research proposals; however, monthly meetings have historically been sufficient.*

*The Chair calls the meeting to order. The Open Session agenda items typically include the following:*

- *Review and approval of the previous month's open minutes*
- *IACUC member training topic*
- *Review of updated/new IACUC Standards*
- *DCM updates*

*The Chair then moves to go into Closed Session during which the closed agenda items are reviewed:*

- *Review and approval of the previous month's closed minutes*
- *List of applications reviewed by DMR that month*
- *Discussion of new or outstanding Animal Concern Reports (ACRs)*
- *Deficiencies identified during semiannual inspections*
- *Review of amendments and exceptions not handled by DMR*
- *Review of new/continuing applications.*

*The assigned primary reviewers present summaries of the applications and discuss their major concerns. The veterinary consultants present any major concerns they have with the protocol.*

#### The methods of protocol review (full committee and/or designated member), including a description of the process and possible outcomes

##### **Designated Member Review (DMR)**

*The IACUC Chair makes recommendations for protocols appropriate for DMR.*

- *The IACUC membership receives a list of the suggested protocols to be processed by DMR, is given directions to access and review online, and reminded that any member may submit concerns and/or call for FCR.*
- *If any IACUC member calls for FCR, that process is followed.*
- *If there no call for FCR, the protocol is assigned a primary reviewer who reviews the protocol and provides written questions/concerns. The Chair has designated the OACU Director to assist with reviewer assignment and provides final approval of the suggested assignments.*
- *All concerns are collected and entered as comments in ACAP.*
- *The designated reviewer can approve, request modifications, or request FCR of the application.*
- *The applications reviewed by DMR are included in the Closed Agenda for the upcoming IACUC meeting.*

##### **Full Committee Review (FCR)**

*Any new or continuing protocol not suggested for DMR is reviewed by FCR in a convened meeting.*

- *Approximately two weeks before the IACUC meeting the primary reviewers are notified of their assigned applications. The Chair has designated the OACU Director to assist with reviewer assignment and provides final approval of the suggested assignments.*
- *Approximately a week prior to the meeting, all members receive the meeting agenda. A summary of each FCR application and the major concerns of the primary reviewer and*



*veterinary consultant are presented to the full IACUC at the monthly meeting for discussion.*

- *FCR occurs during a convened meeting of a quorum of the IACUC members.*
- *Applications are considered approved, modifications required to secure approval, or approval withheld. Applications requiring modifications to secure approval undergo DMR subsequent to FCR per OLAW guidance. IACUC members provide a written agreement to DMR subsequent to FCR before they attend their first IACUC meeting. Withheld applications must be revised and returned to the IACUC for FCR.*

#### How conflicts of interest are handled

*For FCR, a quorum is ensured prior to the start of and during the course of each convened meeting. IACUC meetings are typically attended by more than adequate number to achieve quorum. If an IACUC member contributing to quorum has a conflict of interest regarding any item requiring a vote, an appropriate alternate member will contribute to the quorum instead. IACUC members who are named as PIs on a given application recuse themselves and leave the room during discussion of their applications. IACUC members listed on a given protocol and those who have a potential conflict of interest, do not participate in the discussion or voting for that protocol. A quorum is assured for each vote.*

#### The voting processes

*During protocol review, only abstentions or dissensions are recorded. No vote count is recorded for unanimous decisions. PI requests to perform procedures not conforming to regulatory or institutional policy or standards are reviewed. The IACUC votes on these requests and the outcome is recorded in the meeting minutes. A quorum is assured for each vote.*

#### Alternate processes or procedures for special or expedited reviews

*Since all members are typically not present at a meeting, the IACUC has opted to use DMR subsequent to FCR provided (1) all IACUC members have agreed in advance in writing that the quorum of members present at a convened meeting may decide by unanimous vote to use DMR subsequent to FCR when modification is needed to secure approval and (2) any member of the IACUC may, at any time, request to see the revised protocol and/or request FCR of the protocol.*

*In the event of a designated University Crisis or Emergency event (e.g., COVID-19 or other pandemic, severe weather), the IACUC conducts the meeting by telephone, conference call or virtually. The IACUC successfully utilized this format following storms which forced University offices to close and during the 2020 pandemic. Each time, the IACUC conducted the monthly meeting via conference call with a quorum of the IACUC participating. All members are given advance notice of meetings to be conducted via conference call or virtually. The IACUC adheres to the OLAW guidance on conducting convened meetings via teleconferencing. The following conditions are met.*

- *All members are given notice of the meeting.*
- *Documents normally provided to members during a physically- convened meeting are provided to all members in advance of the meeting.*
- *All members have access to the documents and the technology necessary to fully participate.*
- *A quorum of voting members is convened when required by PHS Policy.*
- *The forum allows for real time verbal interaction equivalent to that occurring in a physically convened meeting (i.e., members can actively and equally participate and there is simultaneous communication).*
- *If a vote is called for, the vote occurs during the meeting and is taken in a manner that ensures an accurate count of the vote. A mail ballot or individual telephone polling cannot substitute for a convened meeting.*

- *Opinions of absent members that are transmitted by mail, telephone, fax or e-mail may be considered by the convened IACUC members but may not be counted as votes or considered as part of the quorum.*
  - *Written minutes of the meeting are maintained in accord with the PHS Policy, IV.E.1.b.*
- 7) Review and approve, require modifications in (to secure approval), or withhold approval of proposed significant changes regarding the use of animals in ongoing activities according to PHS Policy IV.C. The IACUC procedures for reviewing proposed significant changes in ongoing research projects are as follows:

*Most significant changes are handled by DMR after all members have received an electronic copy of the amendment to be reviewed and after all members can call for FCR. Any request for FCR of an amendment, results in FCR. If no member requests FCR, the IACUC Chair designates himself or appoints one or more qualified IACUC members to serve as the designated reviewer(s).*

*Upon submission, the significant change is evaluated and is processed by one of the methods described below.*

*Application Changes Handled by Email*

- *Termination of protocol*
- *Removal of personnel*
- *Change in animal housing location*

*Significant Changes to an Approved Application Requiring the Submission of an Amendment*

*Handled by DMR*

- *Addition of new procedures*
- *Change in specific study objectives*
- *Addition of rodent strains that have significant health phenotypes*
- *PI transfer from one qualified UNC-CH faculty member to another*
- *Change(s) in the degree of invasiveness of a procedure or in the degree of pain/distress an animal may experience (Note: changes to painful/distressful procedures involving USDA covered species require an updated literature search)*
- *Unanticipated or marked increase in clinical signs or animal deaths*
- *Addition of a non-survival or survival surgery when the original application does not include surgery (assessed case-by-case to determine need for FCR)*

*Handled by FCR (anything that an IACUC member requests for FCR)*

- *Most Requests for Exception*
- *Most USDA-Regulated Species*
- *Most Pain Category E*

*Significant changes to an approved application which require Submission of an Amendment and Administrative Review or Veterinary Verification and Consultation*

*Significant changes handled by the OACU staff or IACUC Chair*

- *Addition of qualified personnel (other than change in PI)*
- *Addition of a qualified UNC-CH collaborator*
- *Addition of personnel technique(s)*
- *Addition of a specific role for already approved personnel (e.g., LAC, surgeon, etc.)*
- *Increase in animal numbers not exceeding 25% of originally approved number (does not apply to requests for a change in animal species or for amendments with changes in study objectives or health status of the animals or for which additional procedures are included)*

*Significant Changes handled administratively according to IACUC-reviewed and -approved policies/standards in consultation with an authorized veterinarian\**

- *Changes in the use of anesthetics, analgesics, sedatives/tranquilizers (drugs should be listed in the IACUC-approved drug formulary), or experimental compounds*
- *Changes in euthanasia to any method approved in the 2020 AVMA Guidelines for the Euthanasia of Animals*
- *Changes in the duration, frequency, type, or number of procedures performed on an animal*
- *Addition or change of a collaborator or an approved core facility and any associated changes in housing location, or location where procedures will be performed*

*Significant Changes Requiring Submission of a New Protocol*

- *Change in animal species (exception: when multiple species [e.g., fish, wild birds] are described in the protocol)*
- *Change in overall purpose of a study*
- *Greater than 25% increase in the number of animals indicated in the original approved application (handled on a case-by-case basis, DMR may be allowed)*

*The UNC-CH 'Standard for Amendments and Other Protocol Changes' outlines the types of review and the items which fall under each. Significant changes to building locations, removal of personnel, and termination of protocols can be requested by email and processed by administrative personnel. Significant changes involving the addition of personnel require an amendment and are reviewed by administrative staff. Certain significant changes that fall within approved IACUC policy can be reviewed and verified by a faculty veterinarian. These items are summarized in the 'Standard for Amendments and Other Protocol Changes' and are fully outlined in the separate 'Standard for Veterinary Verification and Consultation'. The remaining change requests are reviewed by the IACUC using DMR or FCR. IACUC Standards are published to PolicyStat, the online UNC-CH Standards repository, and is linked through the UNC-CH IACUC website.*

*All IACUC members are given the opportunity to review amendments and may call for FCR of any DMR items. The IACUC Chair serves as the primary reviewer and a veterinarian reviews each of these amendments as well. EHS reviews changes relevant to their policies. The administrative staff reviews any personnel or housing items. The Grants Manager confirms items requested for congruency reviews have been included. The Health Sciences Librarian, who is an IACUC member, reviews literature search changes for protocols using USDA-regulated species. Should the Chair, as the primary reviewer, determine an amendment exceeds the scope of the original protocol, the PI is instructed to submit a new protocol. If the Chair has a conflict of interest, they will assign another IACUC member as primary reviewer.*

*The UNC-CH 'Standard on Veterinary Verification and Consultation' (VVC) outlines the specific significant changes that can be administratively reviewed by a DCM veterinarian. All items covered by this Standard are described in IACUC-approved policies/standards and veterinarians are asked to verify the request is compliant and appropriate for the circumstances. If the veterinarian determines the requested changes exceed the limits of the VVC Standard, the amendment is referred for DMR or possibly FCR. Examples of significant changes appropriate for VVC include a change in route of administration for agents already approved in the protocol and addition of an IACUC-approved method of animal identification.*

- 8) Notify investigators and the Institution in writing of its decision to approve or withhold approval of those activities related to the care and use of animals, or of modifications required to secure IACUC approval according to PHS Policy IV.C.4. The IACUC procedures to notify investigators and the Institution of its decisions regarding protocol review are as follows:

*At the monthly IACUC meeting, applications are categorized as approved, modifications required to secure approval, or withheld approval.*

*Applications with withheld approval must address all concerns raised by the committee and be resubmitted for FCR at a subsequent IACUC meeting. The PI is notified by email through the online application of the withheld status.*

*For applications requiring modifications to secure approval, all issues raised during the IACUC meeting or via DMR are entered as comments in ACAP along with all the existing pre-review (administrative, training and compliance, and EHS) comments. OACU sends an email detailing the outstanding issues to the PI through ACAP. The PI makes the requested revisions, and the revised protocol is returned to the appropriate designated reviewer(s). As the reviewer indicates satisfaction with each comment, OACU resolves it in ACAP. This process continues until the reviewer(s) are satisfied with the changes, at which point the reviewer(s) send(s) an email to the OACU confirming their approval of the revised application. If a protocol is assigned more than one designated reviewer, the reviewers must be unanimous in any decision. They all review identical versions of the protocol and, if modifications are requested by any one of the reviewers, then the other reviewers are made aware and must agree to the modifications. Applications deemed to not be approvable are referred to FCR.*

*Once the protocol is approved, the PI is sent an email indicating that the approval documents can be viewed and accessed using ACAP. The approved protocol includes a signature page that notes the approval date, expiration date, and bears an electronic copy of the IACUC Chair's signature.*

*The IO receives a copy of the monthly IACUC minutes, which indicate protocol status, after the minutes are approved.*

- 9) Conduct continuing review of each previously approved, ongoing activity covered by PHS Policy at appropriate intervals as determined by the IACUC, including a complete review at least once every 3 years according to PHS Policy IV.C.1.-5. The IACUC procedures for conducting continuing reviews are as follows:

IACUC monitoring of ongoing activities (post-approval monitoring).

*The IACUC conducts the inspections and information visits noted in section D2 above.*

- DCM Animal Facility Semiannual Inspections
- Investigator Laboratory Semiannual Inspections
- Satellite Housing Facility Inspections
- Investigator Laboratory Informational Visits

*In addition, OACU conducts post-approval monitoring and procedural training/observations for survival and non-survival surgery, pain category E and aversive behavioral conditioning. The focus of the Procedural Observation is to view the individual conduct a mock procedure to ensure personnel qualifications and compliance with the approved protocol and institutional standards. Upon successful completion of a Procedural Observation, future observations will occur approximately every 1-3 years. The Procedural Observation does not take the place of the semiannual inspection, but it may be conducted in conjunction with the inspection if scheduling permits. The frequency of the procedural visit may also be influenced by reports from DCM, IACUC, or questions raised during application review.*

How the IACUC conducts a complete review of previously approved protocols at least every 3 years.

*Continuing protocol review consists of a triennial de novo review of the entire protocol by FCR or DMR. The ACAP system maintains an online database of all approved applications and their approval and expiration periods. To avoid expiration of an application prior to the continuation protocol's approval, investigators are informed of the upcoming application*



expiration date by electronic mail starting 12 weeks before the protocol expiration date. The PI receives a series of three notices reminding them to submit a full application if they wish to continue their work. IACUC handles PIs who fail to submit a continuation application or fail to receive IACUC approval of their continuation application before the expiration date the following way. If the investigator has animals 'in-house' on a PHS-funded project, the investigator's animals are transferred to a temporary IACUC Holding Application. Animals are under the care of DCM and no experimental work is permitted. The IACUC Holding Application is a temporary measure and PIs must work with the IACUC to secure approval of their application. Continuing animal work on an expired application is a violation of federal and University policy.

#### Describe the annual review process for USDA covered species

Investigators who have applications describing work with USDA-regulated species are required to update their application annually. The annual review form requests a progress report, indication of whether the project was active during the previous year, the details of any unexpected outcomes, and if any future changes are planned. These annual renewals are reviewed by DMR and included in the monthly IACUC meeting materials.

- 10) Be authorized to suspend an activity involving animals according to PHS Policy IV.C.6. The IACUC procedures for suspending an ongoing activity are as follows:

The IACUC adheres to the following procedures if a suspension of an ongoing activity is necessary. Suspension of an application requires a convened meeting of a quorum of the IACUC members and a vote in favor of suspension by the quorum majority. The IACUC gives the AV or his/her veterinary designee authority to stop an activity if the AV determines that animal health is in jeopardy or if it is necessary for the provision of adequate veterinary care. The AV or his/her designee must notify the IACUC immediately and the IACUC must convene a meeting in a timely manner to review the halted activity. The IACUC will report its decision of a suspension in writing to the IO. The IO will notify OLAW in writing of the suspension. The IO will notify USDA of any protocol suspensions if the suspended animal activity involves a USDA covered species.

- E. The risk-based occupational health and safety program for personnel working in laboratory animal facilities and personnel who have frequent contact with animals is as follows:

Occupational Health and Safety of Personnel (OHSP) is a collaboration between DCM, IACUC, OACU, Department of Environment, Health and Safety (EHS) and the University Employee Occupational Health Clinic (UEOHC).

(b) (6)  
(b) (6)

(b) (6) The institution's occupational health and safety program includes all personnel involved in the care and use of animals. Personnel include investigators and other researchers, including students, who work with animals; facility managers, supervisors, veterinarians, husbandry technicians and anyone else involved in the care and use of animals. In addition, members of the IACUC and IACUC staff who conduct semiannual inspections are included.

#### Control and prevention strategies

Personnel exposed to animals receive a UEOHC evaluation. Personnel (including students) with animal exposure are identified through the protocol or by working in certain jobs or functions in the University (DCM, Facilities Services personnel, IACUC members). These people must complete a health history questionnaire that is evaluated by a health professional in the Occupational Health and Safety program. The medical program addresses laboratory animal-associated allergy, vaccination, tuberculosis screening, treatment of bites, scratches and other physical injuries related to work exposures or practices, and the selection and use of PPE. In

*addition, it includes lifestyle counseling as it relates to worker health, wellbeing, and workplace performance. For most individuals using animals (rodents), the actual medical hands-on component is minimal, such as updating tetanus immunization, periodic tuberculin testing for NHP users, or physical exam and other medical review for patients with significant allergy scores. All on-the-job injuries are handled by the UEOHC.*

*A medical evaluation is included as part of the risk assessment component of the OSHP. The University Employee Occupational Health Clinic (UEOHC) performs certain medical surveillance and health and safety program functions on behalf of University workforce members, including those workforce members involved in animal activities. UEOHC does not engage in covered functions under HIPAA and is therefore not part of the University's HIPAA hybrid designation. Nevertheless, UEOHC safeguards and maintains the confidentiality of workforce medical records in accordance with applicable University security policies for confidential and restricted information. Although the IACUC office does not receive the contents of the medical evaluation, it receives confirmation of an individual's completion of the medical evaluation form and assessment by UEOHC health personnel.*

#### Hazard identification and risk assessment

*The hazard identification process begins with protocol review. The protocol form requires that the PI define the hazardous agents to be used in the research. In addition to the veterinary pre-review and the IACUC member review, each protocol receives an initial review of hazards by an EHS employee. The provisions for safe handling of hazards are then reviewed by EHS in concert with other parties, as necessary. This hazard review ensures that PIs and their staff, as well as DCM staff, are aware of hazards and have the proper engineering controls and PPE during administration, handling, and disposal.*

*In addition, EHS requires all PIs working with hazardous agents to have a Laboratory Safety Plan (LSP) on file. The LSP identifies all laboratory related hazards, required controls and personal protective equipment (PPE) for the specific research conducted by lab. The LSP is updated at least annually by PI and lab staff review plans annually to verify that they understand the laboratory hazards, controls and required PPE of their work environment.*

#### Facilities, equipment, and monitoring

Most animal housing areas are maintained as barrier facilities for housing of SPF rodents, especially valuable genetically modified animals, or irreplaceable animal models. PPE is determined based on housing type and animal species. Each facility has specialized areas for receiving and storage of food, bedding, and chemical supplies.

There are separate spaces for washing, sterilizing equipment, supplies and, depending on the volume of work, bulk walk-in machines (including robotic processing) for washing cages, bottles, glassware, racks, and waste cans; a utility sink; a bulk sterilizer for equipment, food, and bedding; and separate areas for holding soiled and clean equipment to limit exposure of hazards.

Automation and semi-automated processes (including autowater, bedding dispensers, pneumatic bedding disposal) are used in buildings to improve ergonomic handling of husbandry tasks.

Custom caging designed for housing NHP were purchased to assure complete security and safety for DCM employees, animal handlers, and PIs. Restraint gloves are used for handling animals.

Suitable pig boards and appropriate caging/chutes are used when handling and moving large pigs.

For DCM staff, respiratory protection is utilized when dumping dirty cages if an engineering control such as a HEPA-filtered cage dumping station or biological safety cabinet is not available. Additionally, certain species (e.g. sheep, NHPs) or certain hazardous agents require respiratory protection for personnel who enter the rooms to perform work.

DCM Training Coordinators and EHS provide general instructions and Standard Operating Procedures (SOPs), on the safe operation of the DCM autoclaves, cage washers, and other

animal care affiliated equipment. Most required and reoccurring training is centered on the different equipment and how each safety consideration (e.g. steam, hot water, chemical agents, etc.) will vary and the types of safety features that equipment may or may not have (e.g. power buttons, lock/unlock key switches, stop/abort cycles, open/close doors, etc.). It is imperative that employees are trained to locate and use the safety features specific to the equipment they will be operating. SOPs and DCM Training Team discuss how the equipment is maintained and all personnel protective equipment necessary to perform tasks. Each facility has informational signage for hazard communication posted near the pertinent equipment.

Use of DCM equipment by an individual prior to familiarization with the relevant SOPs and hands-on training by the Facility Manager and/or the DCM Training Team is prohibited. Completion of these two requirements must be documented within DCM Research Training Database. All DCM employees who utilize autoclaves are required to take the EHS online Autoclave Safety training.

#### Personnel training

*Zoonoses/Lab Animal Allergy training is required for all DCM personnel. An online module is also available for others that might have limited contact with animals such as maintenance personnel. All personnel listed on the who work with animals must take the online IACUC Orientation once and the DCM Orientation every three years. Both Orientations include the 'Animals and Human Health Risks' module which has information regarding allergies and zoonotic diseases.*

*UNC-CH Facilities Services personnel that perform maintenance in DCM areas are required to take the online training module "Occupational Health Program for Employees with Animal Exposures". Hazard specific training is available when necessary. The PPE Hazard Assessment is conducted with employees at least annually.*

*Service contractors maintaining or servicing equipment in the DCM facilities should present a proof of health risk assessment by their company healthcare provider. In addition, Service Contractors should provide proof of TB testing before entering rooms where Nonhuman Primates (NHP) are housed.*

*Contractors are required to take the DCM training module "Security and Hazard Awareness in Animal Facilities for Non-Animal Users" and receive a DCM facility orientation. Hazard specific training is available when necessary. All completed training forms are maintained by the DCM Training Coordinators.*

#### Personal hygiene

*A daily change of scrub shirts and pants are provided for all DCM personnel. Laundry service is provided by a commercial laundry. Each employee has a shoe allowance to purchase safety footwear for use exclusively in the workplace. DCM also purchases safety glasses, including prescription glasses for those required to wear safety glasses. Boots and protective clothing are provided for personnel working in high moisture areas. Respirators are provided by DCM and fitted by EHS personnel for staff exposed to respiratory hazards (including allergies if indicated) as part of the University's Respiratory Protection Program. Hearing protection is provided for staff enrolled in the University Hearing Conservation Program administered by EHS. Upon entry into most DCM animal rooms gloves and disposable gowns are required. Certain areas require additional PPE, such as BSL areas and large animal spray down areas. PPE signs are posted at the entry to every animal room or area. Many animal rooms have sinks for hand washing. Shower-locker-changing facilities are provided in all major buildings. Limited wearing of uniforms is allowed outside the workplace for short excursions, i.e. short errands, etc. However, uniforms should not be taken home, worn outside the facility on extended excursions, worn outside if a staff member has worked in a primate or biohazard area, or worn outside if the uniform is soiled.*

#### Animal experimentation involving hazards

*EHS requires all PIs working with hazardous agents to have a Laboratory Safety Plan on file to describe all work involving: radioactive materials, x-rays, lasers, hazardous chemicals, biological hazards, recombinant DNA, or laboratory research animals. The UNC-CH Laboratory Safety & Biological Safety Manual has been distributed to PIs and is readily available to employees at <http://ehs.unc.edu/manuals/>. EHS maintains an extensive web site that includes forms, data*

sheets, self-study modules, employee training history, training schedules, the UNC-CH Laboratory Safety Manual, and links to Safety Data Sheets. The LSP lists all laboratory personnel that use hazardous materials and their activities to ensure appropriate training has occurred. All laboratories are inspected annually as part of the Collaborative Laboratory Inspection Program (CLIP). All animal housing areas are inspected semiannually.

SOPs for work with specific hazardous agents are in place. EHS specific SOPs pertaining to animal research include: "DMBA: Use in Animals", "Formaldehyde Solution Use in Small Animals", "MS-222", "Tamoxifen", "Isoflurane", "Urethane" and "Handling Animals Dosed with Chemical Hazards". All BSL facilities also have SOPs related to facility/animal care.

The hazard identification process begins with protocol review. The protocol form requires that the PI define the hazardous agents to be used in the research. The IACUC will not approve a protocol involving hazardous agents until EHS documents approval. DCM posts biological, chemical, and radiological hazard forms on room or cubicle doors to alert workers to hazardous agents. PPE requirements which address hazardous agent use are posted on the door of each room.

When animals are to be dosed with a chemical hazard, laboratory workers should provide advance notification to those who will take care of their animals and should label each cage appropriately. For animals housed in DCM-managed areas, at least three business days prior to dosing the animals, the laboratory will notify the DCM Facility Manager/Supervisor of the dosing schedule and route of administration. The cages are then marked with yellow "Chemical Hazard" cards. All bedding present in a rodent cage within 3 days of dosing is considered contaminated until it is disposed of appropriately. A lime green "Chemical Hazard Last Dose" card is placed on cages by the research staff when the last chemical hazard dose is administered. Rodent cages are covered with micro-isolator lids and/or are maintained on a ventilated rack. Employees must wear full personal protective equipment for handling animals, cages, and bedding. Cages are opened only during cage changing and/or animal care or study-related reasons in HEPA-ventilated cage changing station, a biological safety cabinet, or a chemical fume hood. In most areas, bedding is dumped in a HEPA-ventilated dumping station, such as the "Bedding Disposal Cabinets" used in several DCM facilities. If not available, employees wear an N-95 respirator or Powered Air Purifying Respirator (PAPR) when working with open cages. Bedding that contains chemical hazards is segregated from regular animal bedding for incineration. After all contaminated material is dumped, the waste bag(s) is tied closed, sealed inside an incineration box, placed into a carcass cooler and is recorded on the "Incinerator Box Tracking Sheet".

All animal carcasses are bagged and boxed as medical waste for incineration via an outside waste contractor. BSL2 & 3 carcasses are autoclaved prior to being added to medical waste boxes. Carcasses that contain Short- or Long-Lived radionuclides are frozen in the PI's laboratory (or in the vivarium) with waste pickup requested by the PI. Animal carcasses that contain Very Short-Lived radionuclides are held for ten half-lives and surveyed by the PI. If the carcass survey cannot be distinguished from background radiation, it can go into the regular waste stream.

Infectious waste (BSL2 and BSL3) is autoclaved and disposed in regular trash after autoclaving. Sharps are collected in appropriate containers and either autoclaved if a biological waste or disposed to dumpster if non-hazardous. All animal bedding that UNC-CH's Office of Waste Reduction and Recycling collects on the animal bedding route, is collected by Waste Industries in 35-gallon carts filled by DCM employees. The carts containing used animal bedding are dumped into a rear load garbage truck. The driver hooks the carts to a cart tipper at the rear of the truck and uses a mechanical lift to tip the cart contents into the hopper. The exception is the pneumatic system which uses a sealed-enclosed container. All the bedding collected (1-3X/week), either in the rear load truck, enclosed container, or via dumpsters, goes to Waste Industries transfer stations.

Bedding that contains Short- or Long-Lived radionuclides is frozen in the PI's laboratory (or in a PI freezer in the DCM space) with hazardous waste pickup requested by the PI.



*For BSL2+ and BSL3 hazardous agents: Personnel working at BSL3 or with infected humanized mice are trained in special precautionary techniques and wear additional PPE such as puncture resistant gloves when anesthetizing, restraining, or infecting animals. These personnel may also be enrolled in additional physical and immunization program requirements through the UEOHC.*

*Personnel who work with species where a zoonotic risk is possible: When handling sheep, N95 or PAPR respiratory protection is required and personnel are enrolled in Respiratory Protection Program which includes a physical at UEOHC. Personnel who handle macaques and primatized mice (engraftment of nonhuman primate cells ) may be enrolled in the immunization program through UEOHC and are trained in Macaque Bite Scratch Kit and emergency response protocols.*

#### Personal protection

*Most animal housing areas are maintained as barrier facilities for housing of SPF rodents, especially valuable genetically modified animals, or irreplaceable animal models. PPE is determined based on housing type and animal species. Each facility has specialized areas for receiving and storage of food, bedding, and chemical supplies.*

*University research personnel use respirators for protection when there is potential for exposure when working with Biological Hazardous agents (e.g., bacteria such as tuberculosis, viruses, and other infectious agents).*

*For DCM staff, respiratory protection is utilized when dumping dirty cages if an engineering control such as a HEPA-filtered cage dumping station or biological safety cabinet is not available. Additionally, certain species (e.g. sheep, NHPs) or certain hazardous agents require respiratory protection for personnel who enter the rooms to perform work.*

*Dependent on the type of work operation and type of hazard, either an N-95 disposable respirator or Powered Air Purifying Respirator (PAPR) is required. Fit testing and the appropriate use of respirators are a function of EHS as part of the University's Respiratory Protection Program. The UNC-CH Respiratory Protection Program provides respirators to protect the health of employees in accordance with OSHA 1910.134. The program includes medical surveillance, training, and fit testing. In addition, training is required which outlines proper inspection, care, cleaning, and storage of respirators.*

#### Medical evaluation and preventive medicine for personnel (including immunizations, vaccinations, and procedures for reporting and treating bites, scratches, and injuries.)

*All personnel with animal exposure, including IACUC members and students, complete the evaluation conducted by the UEOHC. Personnel with animal exposure are identified on the animal use protocol or by working in certain jobs in the University (DCM, Facilities Services personnel). People with animal exposure are required to complete a health history questionnaire that is evaluated by a health professional in the Occupational Health and Safety program. All animal workers are screened for animal allergies before starting work and every two years thereafter to monitor for possible animal allergies. There are no exemptions from this program. In-person evaluation is required for persons with baseline or worsening animal allergies. Employees responsible for the direct care of our research animals (DCM) are seen yearly by Occupational Health Services for medical review & examination, animal allergy screening, and clearance for and testing for use of the appropriate respirator.*

*Personal Protective Equipment (PPE) Hazard Assessments are done for most positions in DCM (veterinarians, husbandry technicians, cage-wash technicians, etc.) when the employee starts the position. They are updated at least annually and when a change occurs. These PPE Hazard Assessments clearly outline the hazard, task and required PPE for that position. the supervisor reviews the information with the employee and then both individuals sign the document. DCM Training Coordinators complete a medical surveillance and EHS training checklist prior to the employee starting in DCM to determine EHS requirements for each employee. This checklist is shared with EHS staff so they may flag employees appropriately. In addition to when changes occur, both the checklist and the PPE Hazard Assessment are updated anytime a person transfers to another area.*

DCM employees that work in areas where noise levels exceed OSHA occupational exposure limits are enrolled in the University Hearing Conservation Program. As part of the program, enrolled employees are provided adequate hearing protection at no cost. Warning signs requiring hearing protection are posted to the entrances to the "noise-hazardous" areas as defined by OSHA. The program is designed to protect University employees from long term hearing loss associated with noise levels in the workplace in compliance with the OSHA Standard 29 CFR Part 1910.95 Occupational Noise Exposure. The program provides annual audiometric testing, annual training, and adequate hearing protection for enrolled employees. In DCM, enrolled employees include animal care staff in the canine facilities and staff that work in specific cage washing facilities. Warning signs stating "Hearing protection required in this area" have been posted on the entrances to these facilities.

Service contractors maintaining or servicing equipment in the DCM facilities present a proof of health risk assessment by their company healthcare provider. In addition, Service Contractors should provide proof of TB testing before entering rooms where Nonhuman Primates (NHP) are housed. IACUC members, including the non-affiliated and non-scientist members are enrolled in the UEOHC as part of their initial IACUC Orientation Process and thereafter. Visiting Scholars that are added to the IACUC protocol must show evidence of Occupational Health coverage from their home institution before working with animals.

EHS staff participate in semiannual inspections of all facilities and check safety aspects of the program during these inspections. Industrial hygienists from EHS also perform workplace hazard surveillance in the animal facilities including heat stress and noise monitoring. All hazard use must be approved by EHS or the appropriate institutional committee (e.g., IBC for recombinant DNA research). The IACUC will not approve an animal use protocol involving the use of an experimental hazard until documentation assuring review and approval for the use of the hazardous substance is received from EHS.

Describe special precautions for personnel working with nonhuman primates (e.g., tuberculosis screening, training and procedures for bites and scratches, and education regarding Macacine herpesvirus 1, formerly Cercopithecine herpesvirus 1 (Herpes B)).

All protocols using macaques are reviewed by DCM and EHS and will follow the joint DCM/EHS SOP. DCM and EHS provide specific training for DCM personnel and laboratory workers involved with projects using macaques. B virus safety protocols are based upon CDC "Guidelines for Prevention of Herpesvirus Simiae (B Virus) Infection in Monkey Handlers" and the B Virus Working Group "Recommendations for Prevention of and Therapy for Exposure to B Virus (Cercopithecine Herpesvirus1). Zoonotic training is required for DLAM employees who work with non-human primates.

Personnel who handle macaques are enrolled in the immunization program through UEOHC and are trained in Macaque Bite Scratch Kit and emergency response protocols. James Hill, MD, MPH is board-certified in Occupational & Environmental Medicine as well as Physical Medicine & Rehabilitation, a member of the EHS Leadership Group and is one of the leads of the University's BioSurety Program. He is a signatory official on all medical surveillance SOPs for BSL level research on campus as well as special use protocols where there is a potential for exposure to Q-fever, Herpes B, pseudo-typed rabies, etc.

TB testing is required and provided by the UEOHC. Measles vaccine status and disease history are included in the UEOHC medical evaluation given at the start of employment. Employees must have positive vaccination/immune status before working with non-human primates. Required PPE for all non-human primate work includes mask, safety glasses, face protection, coveralls, shoe-covers, and bonnets. Areas with macaques are supplied with "monkey bite kits".

- F. The total gross number of square feet in each animal facility (including each satellite facility), the species of animals housed there and the average daily inventory of animals, by species, in each facility is provided in the Facility and Species Inventory table.  
(see Part X.)

- G. The training or instruction available to scientists, animal technicians, and other personnel involved in animal care, treatment, or use is as follows:

Describe training or instruction provided to people caring for or using laboratory animals in the proper and humane animal care and use

#### IACUC Orientation

*All PIs, Co-PIs, LAC, and animal handlers listed on the protocol must take the online IACUC Orientation which reviews relevant federal, accrediting, and institutional standards, as well as 3Rs, harm/benefit analysis, information regarding search for alternatives among other topics. The IACUC Orientation provides detailed instructions for completing the online animal care application.*

#### DCM Orientation and Facility Tour

*In addition to the taking the online 'IACUC Orientation', PIs, Co-PIs and all individuals working with animals in the DCM facilities are required to complete the 'DCM Orientation' which reviews expectations and standard operating procedures within the animal housing facility. It includes training modules that provide information on the animal facilities, husbandry care, university policies and procedures, veterinary care, zoonotic disease, allergy risk, other health risks to humans, and cross-contamination prevention. In addition, researchers must participate in a 'DCM Facility Tour' before they are given access to the animal facility. This tour supports the DCM Orientation, while providing more detailed information. It also includes training on facility security and building specific issues, as well as a tour of the specific DCM facility.*

*DCM also provides training to new researchers and/or researchers using a new animal model. This training provides information pertaining to the DCM services provided, necessary forms that must be completed, and required training for research staff to begin housing and utilizing the animal model.*

#### Hands-on Training and the Laboratory Animal Coordinator Certification Program

*The hands-on training of research personnel is handled in the following manner: every individual handling mice or rats is required to either attend a hands-on training class or be certified by an approved Laboratory Animal Coordinator (LAC). Each PI with an approved animal care application must appoint an LAC for their laboratory. The LAC may be the PI or may be a qualified laboratory member designated by the PI. The LAC is required to take the didactic LAC lecture before being certified. Once certified, the LAC is responsible for coordinating animal-related activities in the laboratory and serving as the laboratory liaison.*

*The LAC Certification provides training consistency because each LAC is trained/certified by in the same standard techniques and procedures and has demonstrated sufficient proficiency to train individuals in their laboratory.*

*Once the LAC is certified, they may provide the hands-on training for the laboratory and submit to the IACUC electronic certification records of all training provided. Alternately, research personnel working with rodents may receive the required training by attending one of the scheduled hands-on classes or one-on-one sessions offered monthly.*

#### LAC Certification

*Each LAC is required to attend a lecture covering LAC responsibilities and animal welfare rules and regulations. Also, if the LAC will train and certify lab members, the LAC must obtain hands-on training in all aspects of general rodent handling (from the basics of handling and restraint and transporting an animal to determining its sex) and in standard research techniques used by that laboratory, such as blood withdrawal, injections, anesthesia, and euthanasia. LACs are trained and individually observed. They are certified only after demonstrating proficiency in the techniques. Additional one-on-one training is required when the individual does not master the technique during the class.*

#### Other Required Training of Research Personnel Working with Rodents



*Depending on the type of research and animal model, researchers are required to attend the three hands-on rodent training and certification workshops – Rat Handling and Techniques, Mouse Handling and Techniques and Aseptic Surgical Technique. If the demand exceeds the set schedule, additional classes are offered. Several hours every week are devoted to one-on-one training, assisting research personnel with specialized procedures, retraining techniques not mastered during the hands-on class session, or accommodating researchers with scheduling conflicts. The Mouse and Rat Handling and Technique courses cover basic handling, blood withdrawal, injection, sexing, and euthanasia methods. The Aseptic Technique class covers the procedures necessary to maintain aseptic technique for survival surgery. The DCM veterinary and veterinary technical personnel have extensive contact with investigators and their research staff regarding these techniques and extensive one-on-one training occurs by these methods.*

#### Mouse Breeding Policy (Mouse Cage Density) Lecture

*This lecture covers the specifics of the mouse cage density policy and implementation of breeding and colony management. It is required of individuals listing mouse breeding as a technique on the ACAP.*

#### Other Required Training of Research Personnel Working with non-Rodent Species

*DCM veterinarians and veterinary technicians provide one-on-one training and certification of research personnel handling non-rodent species. Researchers working with USDA-regulated species are required to receive the online training described previously. LACs in laboratories using these species attend the lecture component as previously described. The hands-on training is performed one-on-one and is species as well as protocol specific. It covers basic handling and techniques. Laboratory members conducting survival surgery are required to attend the aseptic technique course. Procedures such as injections and blood withdrawal are covered as dictated by the protocol. Senior animal husbandry personnel provide training on animal handling and restraint when necessary. Members of the veterinary faculty offer their expertise when requested and whenever anyone is identified to need guidance. The Veterinary Services staff are identified as LAC on several protocols.*

#### Describe training or instruction on research or testing methods that minimize the number of animals required to obtain valid results and limit animal pain and distress.

*Preliminary training for IACUC members, OACU staff, scientists, research staff, students, and other personnel working with animals is the online "IACUC Orientation" developed in-house and tailored to the UNC-CH animal program. Completion of this online training and test is required of all PIs, Co-PIs and individuals working with animals listed on the animal use application prior to application approval. The IACUC Orientation includes 12 training modules providing an overview of the federal regulations and institutional requirements pertaining to humane care and use of animals as well as a detailed explanation about each section of the Animal Care Application (ACAP). The IACUC Orientation includes information on Russell and Birch's Three R's (Refinement, Reduction, and Replacement) and provides examples of how each relates to animal experimentation. The training indicates the researchers need to affirm that they will use the minimum number of animals necessary to obtain valid results ("reduction" principle). Information is provided about using a biostatistician, published findings, or consultation with experts in the field is provided for determining the appropriate number of animals. Details about performing a literature search, choosing appropriate statistical design, and sharing animals, tissues, or organs with other approved animal users is also provided. The application must include details of animal numbers per group, (including control groups and treatment groups), and the rationale for selecting group size. It includes details on minimization of pain and distress including the administration of analgesics and anesthetics. The Orientation also has links to the University's Health Science Library tutorial on performing literature searches for animal alternatives, the Animal Welfare Information Center, and other databases which feature animal alternatives.*

#### Describe training or orientation provided to the IACUC members, including background materials and resources.

*The OACU Director performs a two-hour orientation with each new IACUC member reviewing the following: evolution and responsibilities of the IACUC; IACUC operation and procedures; monitoring of approved applications; protocol changes (amendments); records; semiannual reviews; handling animal welfare concerns; IACUC roles, responsibilities, and relationships. Prior*



*to receiving the IACUC Orientation provided by the Director, all IACUC members are required to review the online UNC-CH IACUC and DCM Orientations and take the associated tests. The IACUC online Orientation includes 12 training modules that provide information on applicable regulations, standards and accreditation, humane care and use of animals, reporting animal welfare concerns, as well as a detailed explanation about each section of the Animal Care Application (ACAP). It includes information on Refinement, Reduction, and Replacement and examples of how each relates to animal experimentation. The DCM Orientation provides information about the DCM animal facilities, husbandry care, university policies and procedures, veterinary care, zoonotic disease, allergy risk, other health risks to humans, and cross-contamination prevention. IACUC members are provided access to the UNC Animal Welfare Assurance, the current 'AVMA Guidelines for Euthanasia', the 'Guide for the Care and Use of Laboratory Animals', the OLAW PHS Policy and OLAW website, and the USDA AWA and Regulations.*

*In addition, the OACU E&O unit performs a facility inspection orientation prior to the members' first semiannual facility inspection. This allows the new members to become familiar with facility operations, common methods, and what to look for during inspections. IACUC members may receive a copy of the IACUC Handbook and are provided links to the Guide, the PHS Policy, and the web links to institutional standards and the online application form. All members are encouraged to attend local IACUC 101 sessions and seminars hosted by the North Carolina Association of Biomedical Research (NCABR). At each monthly IACUC meeting, members are presented with an IACUC training topic by the Director. Attendance at and participation in the monthly IACUC meeting is an additional and valuable source of training.*

#### **IV. Institutional Program Evaluation and Accreditation**

All of this Institution's programs and facilities (including satellite facilities) for activities involving animals have been evaluated by the IACUC within the past 6 months and will be reevaluated by the IACUC at least once every 6 months according to PHS Policy IV.B.1.-2. Reports have been and will continue to be prepared according to PHS Policy IV.B.3. All IACUC semiannual reports will include a description of the nature and extent of this Institution's adherence to the PHS Policy and the *Guide*. Any departures from the *Guide* will be identified specifically and reasons for each departure will be stated. Reports will distinguish significant deficiencies from minor deficiencies. Where program or facility deficiencies are noted, reports will contain a reasonable and specific plan and schedule for correcting each deficiency. Semiannual reports of the IACUC's evaluations will be submitted to the Institutional Official. Semiannual reports of IACUC evaluations will be maintained by this Institution and made available to the OLAW upon request.

***This Institution is Category 1*** — accredited by the [Association for Assessment and Accreditation of Laboratory Animal Care International \(AAALAC\)](#). As noted above, reports of the IACUC's semiannual evaluations (program reviews and facility inspections) will be made available upon request.

#### **V. Recordkeeping Requirements**

- A. This Institution will maintain for at least 3 years:
  - 1. A copy of this Assurance and any modifications made to it, as approved by the PHS
  - 2. Minutes of IACUC meetings, including records of attendance, activities of the committee, and committee deliberations
  - 3. Records of applications, proposals, and proposed significant changes in the care and use of animals and whether IACUC approval was granted or withheld
  - 4. Records of semiannual IACUC reports and recommendations (including minority views) as forwarded to the Institutional Official, Terry Magnuson, Ph.D., Vice Chancellor for Research.
  - 5. Records of accrediting body determinations
- B. This Institution will maintain records that relate directly to applications, proposals, and proposed changes in ongoing activities reviewed and approved by the IACUC for the duration of the activity and for an additional 3 years after completion of the activity.

- C. All records shall be accessible for inspection and copying by authorized OLAW or other PHS representatives at reasonable times and in a reasonable manner.

## **VI. Reporting Requirements**

- A. The Institutional reporting period is the calendar year (January 1 – December 31). The IACUC, through the Institutional Official, will submit an annual report to OLAW by January 31 of each year. The annual report will include:
  - 1. Any change in the accreditation status of the Institution (e.g., if the Institution obtains accreditation by AAALAC or AAALAC accreditation is revoked)
  - 2. Any change in the description of the Institution's program for animal care and use as described in this Assurance
  - 3. Any change in the IACUC membership
  - 4. Notification of the dates that the IACUC conducted its semiannual evaluations of the Institution's program and facilities (including satellite facilities) and submitted the evaluations to the Institutional Official, Terry Magnuson, Ph.D., Vice Chancellor for Research.
  - 5. Any minority views filed by members of the IACUC

*[Note: if there are no changes to report, provide written notification that there are no changes.]*

- B. The IACUC, through the Institutional Official, will promptly provide OLAW with a full explanation of the circumstances and actions taken with respect to:
  - 1. Any serious or continuing noncompliance with the PHS Policy
  - 2. Any serious deviations from the provisions of the *Guide*
  - 3. Any suspension of an activity by the IACUC
- C. Reports filed under VI.A. and VI.B. above should include any minority views filed by members of the IACUC.

## VII. Institutional Endorsement and PHS Approval

<b>A. Authorized Institutional Official</b>	
Name: Terry Magnuson, Ph.D.	
Title: Vice Chancellor for Research	
Name of Institution: University of North Carolina at Chapel Hill	
Address: <i>(street, city, state, country, postal code)</i> (b) (4) South Building CB# 4000 Carolina Campus Chapel Hill, NC 27599	
Phone: (b) (6)	Fax: (b) (6)
E-mail: <a href="mailto:tmagnuson@unc.edu">tmagnuson@unc.edu</a>	
Acting officially in an authorized capacity on behalf of this Institution and with an understanding of the Institution's responsibilities under this Assurance, I assure the humane care and use of animals as specified above.	
Signature: (b) (6)	Date: 3/22/2021

<b>B. PHS Approving Official</b> <i>(to be completed by OLAW)</i>	
Venita B. Thornton, DVM, MPH Senior Assurance Officer Office of Laboratory Animal Welfare (OLAW) National Institutes of Health 6700B Rockledge Drive Suite 2500 - MSC 6910 Bethesda, Maryland 20892 Email: <a href="mailto:thorntov@od.nih.gov">thorntov@od.nih.gov</a> Phone: (301) 451-4208 Fax: (301) 480-3421	
<div>Digitally signed by Venita B. Thornton -S Date: 2021.04.02 15:57:22 -04'00'</div>	
Signature:	Date: April 2, 2021
Assurance Number: D16-00256 (A3410-01)	
Effective Date: April 2, 2021	Expiration Date: April 30, 2025

# VIII. Membership of the IACUC

Date: December 1, 2020			
Name of Institution: University of North Carolina at Chapel Hill			
Assurance Number:			
<b>IACUC Chairperson</b>			
Name: Roland Tisch			
Title: Professor Microbiology and Immunology		Degree/Credentials: Ph.D.	
Address*: (b) (4) Marsico Hall 125 Mason Farm Rd, Chapel Hill, NC Campus Box 7290 Chapel Hill, NC 27599-7290			
E-mail*: <a href="mailto:rmtisch@med.unc.edu">rmtisch@med.unc.edu</a>			
Phone*: (b) (6)		Fax*: (b) (6)	
<b>IACUC Roster</b> [Provide below or attach]			
Name of Member/ Code**	Degree/ Credential	Position Title/ Occupational Background***	PHS Policy Membership Requirements***
<b>Primary Members</b>			
1 – Roland Tisch	PhD	Professor	Scientist, Chair
(b) (6)			Scientist
			Non-Affiliated
4 – Craig Fletcher	DVM, PhD, DACLAM	Division of Comparative Medicine, Director	Attending Veterinarian
(b) (6)			Non-scientist
			Scientist
			Scientist
			Scientist
			Scientist
			Member
			Scientist
			Scientist
<b>Alternate Members</b>			
(b) (6)			Scientist

	(b) (6)	Scientist
		Non-Affiliated
		Veterinarian
		Veterinarian
		Veterinarian
		Veterinarian
		Veterinarian
		Veterinarian
		Veterinarian
		Non-Scientist
		Scientist
		Scientist
		Scientist
		Scientist
		Member
		Scientist
		Scientist
		Member
		Member
		Scientist

\* This information is mandatory.

\*\* 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.

\*\*\* List specific position titles for all members, including nonaffiliated (e.g., banker, teacher, volunteer fireman; not "community member" or "retired").

\*\*\*\* [PHS Policy](#) Membership Requirements:

<i>Veterinarian</i>	veterinarian with training or experience in laboratory animal science and medicine or in the use of the species at the institution, who has direct or delegated program authority and responsibility for activities involving animals at the institution.
<i>Scientist</i>	practicing scientist experienced in research involving animals.
<i>Nonscientist</i>	member whose primary concerns are in a nonscientific area (e.g., ethicist, lawyer, member of the clergy).
<i>Nonaffiliated</i>	individual who is not affiliated with the institution in any way other than as a member of the IACUC and is not a member of the immediate family of a person who is affiliated with the institution. 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 veterinarian may not be considered nonaffiliated.

## IX. Other Key Contacts (optional)

If there are other individuals within the Institution who may be contacted regarding this Assurance, please provide information below.

<b>Contact #1</b>	
<div style="background-color: #cccccc; height: 60px; width: 100%;"></div> <div style="text-align: right;">(b) (6)</div>	
<b>Contact #2</b>	
Name:	
Title:	
Phone:	E-mail:

## X. Facility and Species Inventory

Date: December 1, 2020			
Name of Institution: University of North Carolina at Chapel Hill			
Assurance Number: D16-00256 (#A3410-01)			
Laboratory, Unit, or Building*	Gross Square Feet [include service areas]	Species Housed [use common names, e.g., mouse, rat, rhesus, baboon, zebrafish, African clawed frog]	Approximate Average Daily Inventory (numbers for small rodents indicate 'average daily cages')
<b>Division of Comparative Medicine Facilities</b>			
(b) (4)	27223	Dogs	116
	NA	NA	NA
	695	Mice	17
	2992	Guinea pig	0
		Mice	373
	2738	Mice	373
		Rats	222
	13846	Dogs	80
		Swine	17
	57062, two floors	Mice	14683
		Rats	84
	3788	Mice	119
		Rats	51
	7025	Mice	2031
		Rats	48
	11677	Mice	6194
		Rats	0
	11792 (1328 cubicles, rooms 1321 and 1339)	Mice	3
		Rabbit	11
	8602	Mice	61
	915	Mice	74
	458	Mice	0
	7768	Mice	796
		Rats	117
		Hamsters/Gerbils/Guinea Pigs	3
		Rabbit	29
		Ferret	8
		Primate – Old World	4
	17975 two floors	Mice	3308
	10141	Mice	1266
		Rats	419
	6476	Zebrafish	1370 tanks
	1500	Spadefoot toads	1000
	345.5	Loggerhead sea turtles	16

(b) (4)

	Fish	18
500	Frogs	65
2743	Snake	4
	Bearded Dragon	1
	Box Turtle	1
	Gecko	1
	Salamander	2
<b>Satellite/Investigator-Maintained Facilities</b>		
883.25 sq ft of wet lab space 5782.29 sq ft outdoor enclosures maintained for housing fish	Fish	2520.3
60	Mice	150
98	Mice	0
216	Zebrafish	650

\*Institutions may identify animal areas (buildings/rooms) by a number or symbol in this submission to OLAW. However, the name and location must be provided to OLAW upon request.