Laboratory Animal Coordinator (LAC) Lecture

Presented by the UNC IACUC

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL
LAC Program

• What is a LAC?

• Why does UNC have the LAC Program?

• How to become an LAC

Useful links

✓ Step by step instructions for becoming an LAC

✓ Background information on the LAC Program at UNC
If you should leave the lab...

• Inform the IACUC of the change by adding the new LAC to the protocol BEFORE the old LAC leaves

• At least one LAC required on all active IACUC protocols

• The new LAC must have completed:
  • LAC lecture (required)
  • Rodent training (if applicable)
Getting Started

1. Complete online training & orientations
2. Read protocols!
3. Complete hands on trainings
4. Submit amendment to add personnel
5. Submit form to request access to DCM facility
6. Contact DCM manager for facility orientation
7. Access to DCM facility!

1. Research Registration: https://acap.research.unc.edu/iacuc_reg/
2. ACAP: https://acap.research.unc.edu/acap/
3. UNC Event Registration: https://apps.research.unc.edu/events/
4. Contact the Access Administrator at (919)962-5335 or email alyssia@email.unc.edu
5. Contact information provided once space is assigned
LAC Program

LAC Responsibilities:

• Coordinate animal activities in lab
• Ensure everyone is properly trained
• Maintain compliance with animal welfare rules and regulations
• Ensure lab members work within the guidelines of the lab’s protocols
• Ensure all necessary documentation is kept updated
• Act as a liaison between the lab and the IACUC
Review
True or false?

T At least one LAC must be in place on the IACUC protocol at all times

T A laboratory may have multiple LACs

F The LAC must be able to train other people

T The LAC should be familiar with all animal studies & protocols going on in the lab

F The LAC must be able to perform all techniques on the protocol
IACUC Training Classes

ALL FOOD MUST GO TO THE LAB FOR TESTING
IACUC Training Classes

- LAC Lecture
- Mouse Handling and Techniques
- Rat Handling and Techniques
- Aseptic Techniques

Helpful links

- To register for classes: [UNC Event Registration System](#)
- For more information on classes: [Training Overview](#)
LAC Proficiency Assessment

I. Allowed to train and certify laboratory personnel immediately

II. More experience required before able to train laboratory personnel

III. Significantly more experience required before the level of proficiency required of a LAC attained
LAC Training

LAC may not train/certify in the following techniques:

• Retro-Orbital Bleed
• Retro-Orbital Injection
• Cervical Dislocation without Anesthesia
• Decapitation without Anesthesia
IACUC Training Classes

Mouse Breeding Trainings

• Mandatory Mouse Cage Density Policy Lecture

• Voluntary Mouse Colony Management Lecture

“Don’t play with him, he is Wild Type.”
DCM Veterinary Services Training

DCM Veterinary Services provides training for:

1. All species other than mice and rats
   • Contact to schedule training - Veterinary Technician Supervisor at 843-3407

2. Isoflurane vaporizer training
   • Contact to schedule training - DCM Veterinary Technicians at 843-2906
Rat Breeding

- No Lecture required
- Must follow [UNC Rat Cage Density Policy](#)
- Rat Action Required Card

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For RAT Cages Only

**DO NOT REMOVE**

**FOR DLAM USE ONLY**

**ACTION REQUIRED BY:**

1. For trio cages- the second pregnant female must be removed before her litter drops.
2. Wean pups at approximately 21-23 days.
3. After pups are weaned, recommended cage density guidelines are based on body weight as shown in the table below.

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<table>
<thead>
<tr>
<th>Animals</th>
<th>Weight, grams</th>
<th>Floor area of cage/kennel, inches</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1 Adult</td>
<td>100</td>
<td>17</td>
<td>Invalid</td>
</tr>
<tr>
<td>2 Adults</td>
<td>Up to 200</td>
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<tr>
<td>2 Adults</td>
<td>Up to 400</td>
<td>40</td>
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<tr>
<td>4 Adults</td>
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<td>80</td>
<td>Invalid</td>
</tr>
<tr>
<td>Female + litter</td>
<td>124</td>
<td>200</td>
<td>Invalid</td>
</tr>
</tbody>
</table>
Introduction to the IACUC & UNC IACUC Protocol

Helpful link
✓ For more details on the UNC ACAP Online Application
UNC Institutional Animal Care and Use Committee (IACUC)

- Responsible for oversight and ongoing assessment of the animal care and use program and its components
- Minimum of 5 members, consisting of at least
  - One veterinarian
  - One practicing scientist
  - One non-scientist member
  - One member not affiliated with the institution
- Meet once per month to review various aspects of the program as well as the animal care applications
- Supported by the Office of Animal Care and Use
Overview

Goal of the IACUC protocol

• Should clearly outline all aspects of the proposed research in terms a layman would understand.

Main sections

• Rationale for study
• Animal Numbers justification
• Animal Housing details
• Pain categories of animals on study
• List of all personnel involved in animal study
• Complete description of all study activities – surgery, behavioral, etc.
• Euthanasia methods

Read your protocol prior to doing any animal work!
## Application Review Process

<table>
<thead>
<tr>
<th>OACU</th>
<th>T &amp; C</th>
<th>EHS</th>
<th>DCM Veterinarian</th>
<th>IACUC Member</th>
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<tbody>
<tr>
<td>Personnel Roles</td>
<td>Personnel Roles</td>
<td>Agents, Cell Lines,</td>
<td>Animal welfare aspects of study</td>
<td>Scientific aspects of study</td>
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<tr>
<td>Hands-On Training</td>
<td>Hands-On Training</td>
<td>Transgenics</td>
<td>Drugs, doses, routes</td>
<td>Study description</td>
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<tr>
<td>Surgical Sections</td>
<td>Surgical Sections</td>
<td>Hazard Forms</td>
<td>Euthanasia</td>
<td>Study justification</td>
</tr>
<tr>
<td>Locations</td>
<td>Locations</td>
<td>IBC Forms</td>
<td>Surgery</td>
<td>Animal numbers</td>
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<tr>
<td>Procedures</td>
<td>Procedures</td>
<td>Lab Worker Form</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- *This is not a comprehensive list & there is often overlap between reviewers*
- Contact the OACU office with any questions during the review process
  - Phone: 919-966-5569
  - Email: iacuc@med.unc.edu
Post-Meeting Process

IACUC Meeting

Application Reopened

PI Revises & Resubmits

Revisions Reviewed

New Comments Added

All Comments Addressed?

YES

Application Approval

NO
Review Process – Important Dates

Ensure IACUC applications are submitted on time

- Due by the 15th of the month prior to the expiration date
- Recommend submitting continuation applications a month early to date (i.e. ~ 6 weeks prior to expiration) to avoid expiration while actively funded or animals-in house
- IACUC meetings – Generally held the first Friday of the month, may vary occasionally due to holiday schedules
Amendments

Any changes to the approved protocol must be reviewed and approved by the IACUC prior to implementation!

Common amendments

• Adding personnel
• Adding personnel techniques
• Minor changes to the study methods
• Changes to locations listed on the protocol
• Additional test compounds
• Changes to euthanasia methods
• Adding animal numbers

Helpful links

✓ Amendment Guidelines
✓ How to add personnel
“E”xceptions

“Exceptions” are deviations from approved IACUC or federal policy. Must be filed by PI and approved by IACUC before implementation.

• Cage cards of all animals covered by exceptions must be marked with a red letter “E” in the upper right corner. [Reverse-light cycle rooms require the “E” to be in black ink]

• Investigator personnel are responsible for maintaining an up to date copy of the “Exception” in the DCM metal box located outside of each animal housing room.

Helpful links

✓ UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD ON EXCEPTIONS
Animal Procedural Space Exception (APSE)

• Investigator maintained facility in which animals will be maintained and tested for limited periods greater than 12 hours for USDA-regulated species and 24 hours for non-USDA regulated species

• The IACUC will consider on a case by case basis

• Helpful link:
  ✓ Standard on Animal Procedural Space Exceptions (APSE)
Self Reports

Report to the Office of Animal Care and Use (OACU) & Veterinary Services *any* unanticipated study outcomes which result in the harm or death of experimental animals
Which of these should be a self-report?

- You wean a litter of 7 rats on a Monday. You come in on Tuesday and find that one of the weanlings died overnight. They had access to food and water, were not on a study, and all other littermates appear bright, alert, and responsive.

- You begin a study that involves testing test compounds. After two doses, half of the mice in study group (A) die, and the remaining mice are hunched and lethargic.

- Your lab conducts survival surgeries that require twice daily monitoring and analgesia for two days following an operation. After one study, one of your lab members that was supposed to administer Buprenorphine tells you they were busy in the lab and forgot to go down to the facility and the animals missed all doses of post-operative analgesia.

Helpful link- see “Guidance on Prompt Reporting”

Certifying Lab Personnel

Helpful Links:

✓ On-line certification database: Animal Research Registration
✓ Instructions: How to certify laboratory personnel
Certifying Lab Personnel

**Certification Administration**

Enter the details below to certify personnel.

- **Certify Personnel**
  - Last Name: 
  - First Name: 
  - PID: 

- **Select a Species:** Mouse
- **Certified by LC:**

**View Certifications**

- **Select a Species:** Mouse
- **Techniques:**
  - Anesthesia - Injectables
  - Aseptic Technique
  - Cardiac Puncture
  - Carotid Artery Bleed
  - Cervical Dislocation With Anesthesia
  - Cervical Dislocation Without Anesthesia
  - CC2 Euthanasia with Euthanex Smartbox
  - CC2 Flow Meter with Physical Euthanasia
  - Decapitation With Anesthesia
  - Decapitation Without Anesthesia

- **Certified by LC:**
Required Online Orientations

• Animal Handler Profile – updated annually

• DCM- every three years (only if animals are housed in DCM facilities)

• IACUC– completed only once

• Research Profile

• Lab Worker Registration

*Complete through Animal Research Registration
Required Online Orientations

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Research Profile</th>
<th>Lab Worker Form</th>
<th>Animal Handler</th>
<th>IACUC Orientation</th>
<th>DCM Orientation</th>
<th>Training</th>
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<tbody>
<tr>
<td>Principal Investigator</td>
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<tr>
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<td>✓</td>
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<td>✓</td>
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<td></td>
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<tr>
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<tr>
<td>Researcher 6</td>
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</tr>
<tr>
<td>Researcher 7</td>
<td></td>
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<td></td>
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</table>
When training is needed.....
Remember...

• Protocol approval is contingent on completion of orientation and training for all personnel on the application

• An amendment to add new personnel must be submitted by the PI and approved by the OACU before animal work or DCM access is allowed
ACAP: The Personnel Section (1.0)

• List all personnel involved with the project on the protocol

• Ensure all roles and techniques employed in an application are listed in section 1.0

• The following roles must be assigned on each application and require a phone number and e-mail address: Principal investigator (PI), Co-PI, Emergency Contact, Official Contact, Laboratory Animal Coordinator, and Animal Ordering.

• List Cage Density Policy lecture as a technique if breeding mice

Helpful link
✓ Tips for filling out the Personnel Section
Grant Congruency

- Side-by-side grant/IACUC application comparison
- All DOD and NIH grants are being reviewed by the IACUC Grants Manager
- Federally Regulated process
- All animal procedures described in a grant must be included on IACUC application and approved prior to funding

Helpful links:
- Grant Congruency Informational Handout
- Grant Congruency Procedures
I don’t care if we are out of coffee filters...This is a completely inappropriate use of the spin columns!
IACUC Inspection Types

- Semiannual Investigator Laboratories
- Semiannual Animal Facilities
- Informational Inspections (every two years)
- Satellite Inspections
- Unannounced Mouse Breeding Checks
- Facility Spot Checks

Helpful links

- Types and Frequency of Inspections and Laboratory Visits Conducted by the IACUC
Inspection Areas & Questions

- PI animal health records and/or monitoring logs
- Drug logs – analgesia, anesthesia and euthanasia
- Animal Care
- Health & Safety
- Surgery
- Protocol adherence & personnel training
- General OACU updates

Helpful link

✓ [IACUC Semi-annual and Satellite Inspection Checklist](#)
Required Lab Postings

How to report animal mistreatment or animal use application noncompliance
Where? Required everywhere animal work is done!

Emergency telephone numbers
Where? Any central location in the lab, also may be posted in multiple locations if lab is large

Needle safety (if applicable)
Where? Required anywhere needles are used in live animals

CO₂ Euthanasia (if applicable)
Where? Required anywhere animals are euthanized with CO₂
Emergency Contact

- Establish a 24-hour contact name and phone number (cell or beeper) for DCM animal emergencies
- A name and number must be posted within every animal room
- Update contact information when necessary
- Forms provided by DCM
Drug Documentation

• All anesthetics, analgesics, and euthanasia agents **must** be documented **every time** they are used

• **Common drugs requiring documentation:** Isoflurane, avertin, any pain medications administered following survival surgery

• **Common controlled drugs:** Ketamine, buprenorphine, pentobarbital

Helpful links

✓ Isoflurane Vaporizer Log

✓ Isoflurane Drop Method log

✓ Rodent anesthesia/analgesia procedure record (suggested for survival surgeries)

✓ Anesthesia/analgesia drug log template (suggested for controlled substances)
Helpful links: UNC Standards for anesthesia & surgery

Aseptic technique

- University Standard on Aseptic Technique for Rodent Survival Surgery

Anesthesia

- University Standard for Preparation Storage and Use of Tribromoethanol
- University Standard for Anesthetic Vaporizers
- University Standard for Isoflurane Euthanasia Drop Method
- IACUC Anesthetized Procedure SOP for Rats and Mice – For all researchers performing survival and non-survival procedures

Post-operative care

- University Standard for Post-Operative Analgesia
- Post-operative Care Guidelines
Inspection comments

Categories

• N/A
• No Deficiency
• Acceptable
• Minor Deficiency
• Significant Deficiency

How to respond to deficiencies

• Respond by date specified on inspection report with corrective action

What happens to deficiencies

• Presented anonymously at the IACUC meeting once a month, official designation voted on at that time
Procedural Observation

• What is a procedural observation?
• Process for scheduling procedural observation
• Potential outcomes
  • No suggestions for improvement
  • Minor suggestions for improvement and/or amendments
  • Deficiencies

Helpful links
✓ Procedural Observation Description
Procedural Observation

Procedural required if lab performs any of the following:

• studies involving surgery (survival / non-survival)
• behavioral studies involving aversive conditioning
• studies involving animals in pain category E
A Satellite Animal Facility is a non-Division of Comparative Medicine (DCM) animal facility in which animals are housed on a long-term basis and are cared for by the principal investigator's laboratory personnel.

Key points

• Rigorous approval process
• Daily animal care and observation required
• Contact DCM veterinary personnel to report any animal health concerns
• Quarterly IACUC inspection
• On-line animal census documentation

Helpful link

✓ Satellite Facility guidelines
Review

• Break into groups of 2-3 people
• You will be assigned a scenario
  • Inspection review
  • Documentation review
• Report back in 10 minutes
Environmental Health & Safety

Wild day at lab

@LaboratoryEQAS
EHS-Safety Eye washes

- Labs are responsible for emergency eyewash facilities
- Check the system at least once a month and perform a quick (~5 second) flush
- Document the monthly check
  - Inspection tags can be ordered from Fisher (Part No. NC9787676) or you can keep track on a piece of paper near eyewash.
EHS-Secondary Containment

Without exception, secondary containment is required for the following:

• All glass containers of liquid hazardous materials stored on the floor;

• All containers, with capacity of ≤ 4 liters, of liquid hazardous waste, regardless of storage location.
PPE for Animal Work in Labs

PPE required is based on risk assessment of procedures being done in lab space.
Minimum lab PPE required:
- Safety glasses/goggles
- Gloves
- Lab coats
PPE for Animal Work in Labs

Additional PPE based on risk assessment of animal work:
• Puncture resistant gloves
• Surgical masks
• Respiratory protection
• Sleeve covers
• Face shields
Sharps
Sharps Disposal

Biohazard
- Collect directly into red Sharps containers marked with Biohazard symbol
- After autoclaving dispose in regular trash

Chemical
- Collect directly into white plastic Sharps containers marked with “Chemically Contaminated Sharps”
- Submit online EHS waste pickup form

Non-hazardous
- Collect directly into white plastic Sharps containers marked as “Non-hazardous Sharps
- Dispose in regular trash
Sink Disposal of Chemicals

Do not use the sanitary sewer for the disposal of hazardous materials, with the exception of trace quantities associated with cleaning and washing operations, e.g., glassware.

“Let’s review the guidelines for some of the chemicals we handle.”
Network of Laboratory Animal Coordinators

• A useful collection of people that exchange ideas and experiences (listserv)

• Common questions/topics
  • Offer extra animals
  • Ask for extra animals
  • Request expertise on special procedures
  • Questions on where to order specific supplies

http://research.unc.edu/Offices/NLAC/
Useful Websites

• Office of Laboratory Animal Welfare [http://grants.nih.gov/grants/olaw/olaw.htm]

• *Guide for the Care and Use of Lab Animals*

• IACUC [http://research.unc.edu/Offices/iacuc/]

• DCM [http://research.unc.edu/offices/laboratory-animal-medicine/index.htm]

• EHS [http://ehs.unc.edu/]
IACUC Standards

• The IACUC creates, reviews and/or revises current Standards and Policies on a monthly basis. As these documents are approved, they are posted to the main IACUC webpage under ‘Important Notices’ for approximately six months:  [https://research.unc.edu/iacuc/](https://research.unc.edu/iacuc/)

• All IACUC guidance documents can be found under the relevant heading on the IACUC Policy, Standards and Guidance page: [https://research.unc.edu/iacuc/policies-procedures/](https://research.unc.edu/iacuc/policies-procedures/)

• Please ensure that your laboratory references the most recent versions of these documents on our website, and if you have some printed in the lab, that they are updated on a regular basis. We recommend checking the website at least semiannually to update revised policies maintained in hard copy by the lab.
Helpful links

List of commonly referenced UNC Standards

- UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD FOR ADMINISTERED AGENTS
- UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD FOR RODENT BLOOD WITHDRAWAL AND TAIL BIOPSY
- UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD ON RAT AND MOUSE EUTHANASIA
- UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD ON DISPOSAL OF RODENT CARCASSES
- DIVISION OF LABORATORY ANIMAL MEDICINE STANDARD OPERATING PROCEDURE: Handling Cages Dosed with Chemical Hazards
- UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD ON ANIMAL TRANSPORT AND BIOSECURITY
- UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD ON ACCLIMATION PERIOD FOR RECEIVED ANIMAL TRANSFER/SHIPMENTS
- UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD ON FOOD AND/OR WATER RESTRICTION AND/OR DEPRIVATION
- UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD ON WEIGHT LOSS IN RESEARCH ANIMALS
Contact Information

The Office of Animal Care and Use

Phone: 919-966-5569

Email: iacuc@med.unc.edu

UNC IACUC Homepage
Questions?