THE DUKE ANIMAL PROGRAM
(THINGS ADMINISTRATORS NEED TO KNOW)
IACUC: Institutional Animal Care and Use Committee

- IACUC:
  - James Reynolds, Ph.D. (Chairman)
  - Laura Hale, M.D., Ph.D. (Vice Chairman – DUMC)
  - Unfilled (Vice Chairman – DU)
OAWA:
Office of Animal Welfare Assurance

- **Leadership:**
  - Director: Ron Banks, D.V.M., Dipl. ACLAM, Dipl. ACVPM
  - Asst. Director: Julie Sharp, D.V.M.

- **Protocol Specialists:**
  - Jenny Baker, ALAT
  - Sandra Pierce, ALAT

- **Compliance Liaisons:**
  - April Kolstad, D.V.M. (Audits, Training)
  - Sonia Doss, MS Ed, RLATG (Audits, Training)
  - Deb Vanderford, D.V.M. (Protocol Review, Training)
  - Bill Wade, RLATG (Training, BBS, Animal Tracks)
DLAR: Division of Laboratory Animal Resources

- **Veterinarians:**
  - John Norton, D.V.M., Ph. D., Dipl. ACLAM
  - Randall Reynolds, D.V.M., Dipl. ACLAM
  - Francis Sun, D.V.M., Dipl. ACLAM
  - Yohannes Asfaw, D.V.M.
  - Kyha Williams, D.V.M.
  - Clay Rouse D.V.M.

- **Business Contacts**
  - Steve Pomeroy, Business Manager
  - Arnette Williams, Financial Management Analyst
Animal Program:

- Participants:
  - 1300 persons (PIs, Associates)
  - 160,000 critters
- IACUC Members:
  - 32 Primary Members
  - 45 Alternate Members
- 960 Active Protocols
  - 30-40 New Protocols / Month
  - 175-200 Amendments / Month
- 12 Monthly Meetings
- 2 Programmatic Meetings
- 300 Laboratory Inspections / 6 Months
- 2-3 Sub Committee Meetings / Month
- … and inspections by USDA, etc ….
Species Requiring Protocols:
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Species Requiring Protocols:
The Life of an Animal Protocol

- Maximum life span of 3 years.
- Must be reviewed annually.
- A full protocol submission must occur every 3 years – this generates a new protocol number (A123-04-05)
- What to do if a protocol expires…no animal work can be performed under an expired protocol number.
Protocol Auditing

- IACUC Semi-Annual Inspections
- OAWA Compliance Liaison
  - Higher risk activity = more often audited
  - Everyone is subject to an audit
  - Audit ‘for cause’ when requested or required
- Goal:
  - Find the problem and repair it BEFORE it becomes significant!
  - Do so in a collegial manner (NO ANIMAL POLICE)
Compliance Liaison Program

- **Strategic Goal:** Every protocol is audited every year; high risk protocols are audited 2-3 times a year.

- **Strategic Plan:** Use the trend reports of the PAM process to focus training initiatives

- **Two years of data:**
  - FY 05: 80% non-comp; FY 09: 20% non-comp
  - FY 05: 100 visits; FY 09: 1600 visits

- **Trends Observed:**
  - Less serious issues are observed now
  - Fewer USDA citations
  - AAALAC accredited ‘clean letter’
  - PIs are self reporting!

<indication of a culture of compliance>
Animal Program Web Site

Duke UNIVERSITY AND MEDICAL CENTER

Animal Care & Use Program

Welcome to the Duke Animal Care & Use Program Web Site!

Duke animal program applications, forms, reports, or questions can be emailed to the animal program email address: duke_animal_program@duke.edu

Short Cuts to left provide a quick list of specific program information or forms. For example, if you need a form, click FORMS AND REPORTS to the left. Want to see the Policy For Aseptic Technique? Click POLICIES.

Banner icons provide a gateway to specific animal care or use program organizations.

Our site is best viewed using (click icon for downloads):

PC Machines: Internet Explorer 6.0 or better
MAC Machines: Safari
INFORMATION TO GET YOU OUT OF THE DARK ...
Grants & Protocols

- NOT THE SAME DOCUMENT!
- Grants: General experiments, goals, suppositions
- Protocol: Specific details, clear narrative, cannot deviate without submitting a protocol amendment that is reviewed and approved by the IACUC.
- 1 grant = 1 protocol (easiest to review/approve)
- 1 grant = several protocols (PI nightmares)
- Several grants = 1 protocol (PI preference)
- Concordance Letters – best to submit the grant for concordance review at initial protocol submission.
Concordance Reviews

- Required by many funding agencies (all federal)
- OAWA comparison of grant (sec F) and protocol
- Budget page …. May be useful – or not
- **ALL** grant items must be in an approved protocol!
- If not:
  - Amend the protocol
  - PI contact grants manager and describe changes
- Only required for the initial grant release
- OAWA can provide a memo directly to the grant manager noting a protocol is under review (release of personnel funds but not animal funds)
Protocol Changes

- Amendments process:
  - Significant: ~ 2 weeks
  - Minor / veterinary clearance: ~ 5-8 days
  - Minor: ~ 3-5 days
  - The work proposed in the amendment or personnel being added to the protocol cannot perform the work until the amendment is approved...not just submitted.

- Policies and examples available on the web!
Protocol Information

- Protected Information Policy
  - PI confidential information

- Protocols per project:
  - Some PIs have 1 protocol = 1 project
  - Others PIs have several protocols = 1 project
  - Decision is solely the PIs
DLAR Operations

- Traci Reddick
  - DLAR technical services

- Arnette Williams
  - DLAR financial operations
DLAR Rodent Genetic, Technical, and Surgical Services

- Traci Reddick
- Rodent Genetic Core Coordinator

Ensuring sound research through quality animal care.
Rederivation

- Pathogens threaten the health status of animal colonies, have a negative effect on research results, and can affect ability to receive or export animals.

- To produce Specific Pathogen Free (SPF) rodents, our core can utilize both embryo transfer and *in-vitro* fertilization (IVF).
Rederivation

- Embryo Transfer - Ideal for most lines, especially inbred and homozygous lines.

- IVF - Ideal to recover lines from frozen sperm, lines in which males repeatedly fail to mate normally, or lines that are down to critical numbers. Can also be utilized for heterozygous lines in which the males are to be bred with wild type females.
Rederivation

- Recover from Frozen Embryos - Embryos previously frozen are thawed and transferred to SPF pseudopregnant recipient females.
Cryopreservation

- Cryopreservation is advantageous to the research community to preserve valuable, irreplaceable lines and reduce the risk of loss due to contamination, disease or natural disaster.
- Cryopreservation saves space, cost of animal care and reduces the number of animals used.
- Both embryos and sperm can be cryopreserved.
Cryopreservation

- Embryos - Embryos can be harvested at two-cell by *in-vivo* fertilization or two-cell embryos produced by *in-vitro* fertilization (IVF).
  - *In-vivo* – mating of both males and females that carry gene of interest (maintain homozygosity)
  - *In-Vitro* – wild-type oocytes are fertilized by sperm of male that carries gene of interest.
Sperm - Sperm is harvested from cauda epididymides and cryopreserved.
Breeding Services and Colony Production

- Service provided to offer all components of rodent breeding colony operation and management to investigators maintaining strains of mice.
- Operation of this breeding core is operated as a specific pathogen free (SPF) barrier colony which is maintained in a vivarium area with limited access.
- A breeding colony manager has full responsibility for operation of the program and only qualified technicians provide care for breeding animals and litters.
Breeding Services and Colony Production

- Colony planning, transgenic and/or knockout colony development.
- Selecting of breeding pairs in accordance with investigator direction and line/strain characteristics.
- Pair set up/dismantle according to Lab’s instructions or colony plan.
- All aspects of routine care for the breeding colony (recording DOB, weaning, sexing, etc.)
- Data entry/record keeping in database. Export of data from database.
- Regular status reports to lab/scientist.
- Obtaining tissue biopsies for genotyping.
Breeding Services and Colony Production

- Animal identification (tattoo, ear punch).
- Culling and/or euthanizing.
- Dismantling and retiring of breeding pairs.
- Separation of males and females for parturition (as needed).
- Fostering of litters as needed.
- Timed breeding to meet the needs of the research protocol.
- Cage card ordering.
- Transfer of mice to research location, or other location of approved animal housing.
Genotyping

- Genotyping by Polymerase Chain Reaction (PCR) is available for rederived litters and litters produced by the Breeding Core.
Surgical & Technical Services

- Variety of surgical and technical services and the use of several operatory suites and equipment.

- Service to Investigators or Assistance
Technical Services

- Whole Body Perfusions
- Tumor Implantation
- Gavage
- Vaginal Cytology
- Glucose Tolerance Test
- Intrauterine Oil Infusion
- Mammary Transplants/Injections
- Fluid Collection
- Blood Collection
- Injections
Surgical Services

- Ovariectomy
- Castration
- Vasectomy
- Transaortic Constriction
- Amputations
- Jug Catheters
- Intestinal Anastomosis
- Cecal Ligation and Puncture

- Telemetric Implants
- Cesarean Section
- Bile Duct Cannulation
- Carotid Ligation
- Carotid Injections
- Mini Pump Implantation
- Adrenalectomy
http://labanimal.duke.edu/
Dr. Clay Rouse
Staff Veterinarian
Director of Rodent Services
clay.rouse@duke.edu

Jesse DeGraff
Operations Manager & Breeding Core Coordinator
Jesse.degraff@duke.edu
Questions?
DLAR Billing, Housing & Other Administrative Functions

Arnette Williams
Duke University Medical Center
Division of Lab Animal Resources
Research at Duke Utilizing Animals

- Over $500 million funded research involves the use of animals
  - Mostly NIH funds, but many other sources
- Nearly 500 researchers using animals
- Over 1000 Duke employees are involved with using animals in research
Animal Species at Duke

- Mouse Cages
- Rat Cages
- Guinea Pigs
- Cats
- Dogs
- Ferrets
- Rabbits
- Quail
- Tree Shrews
- Primates
- Calves
- Swine
- Sheep
- Zebrafish
- Finches
- Frogs
- Lemurs
- Fish
- 98% rodents
Duke DLAR Animal Facilities

- 14 animal facilities in and around campus
  - Range from 780 to 42,000 net square feet

- 122,000 net square feet of animal holding and support space
Animal Facility Management Software

- Approved animal use protocol dictates number of animals a PI can use
- Numbers tracked when researcher places an animal order
- DLAR also produces bar coded cage cards with order
  - Helps track cage location, provides census info and is used for billing purposes
Costs for DLAR Services

- DLAR considered a University service center, charges back for its costs
- University provides some subsidy in order to keep our per diem charges reasonable
- Budget $10.6 million, recoup $8.2 million
- Charge for Per diems, some veterinary and diagnostic services, animal orders, importation fees, etc.
DLAR Services – Animal Orders

- Ground work required before ordering animals:
  - Approved IACUC animal use protocol
  - Designated animal space obtained.
  - POs set up with chosen animal vendors.

- Submit Animal Order Request to DLAR a week before need.
  - Deadline Monday 5 pm for following week.
  - All research animals must be ordered through DLAR
ANIMAL ORDER REQUEST
DIVISION OF LABORATORY ANIMAL RESOURCES (DLAR)
FAX ORDER TO (919) 684-8576

DATE/TIME: ________________________ REQUESTED BY: ________________________
REQUESTER EMAIL ADDRESS: ________________________ (Must have for email notification of receipt of animals)
INVESTIGATOR: ________________________ PHONE #: ________________________ FAX #: ________________________
PURCHASE ORDER #: ________________________ DURACUC PROTOCOL #: ________________________

FUND CODE FOR PURCHASE ORDER #: ________________________
FUND CODE FOR PER DIEM CHARGES: ________________________

Species: ________________________ Strain: ________________________ Age: ________________________
Quantity: ________________________ Sax: ________________________ Weight: ________________________
SOURCE: ________________________

Holding Facility Desired: ________________________ Room #: ________________________
Data Desired: ________________________ # Per Cage: ________________________
Special Instructions/Requests: ________________________

Special Dietary Needs: ________________________

Length of time animals are expected to be housed in DLAR: ________________________

ALL REQUESTS MUST BE MADE IN WRITING; NO REQUESTS WILL BE ACCEPTED BY PHONE.

Deadlines for Ordering:

1. Rodents (mice, rats, guinea pigs, hamster, gerbils) - Monday 5 p.m. for shipment the following week.
2. Dogs, Cats, Sheep - 2 weeks in advance.
3. Rabbits - Monday 5 p.m. - for the next week.
4. Pigs, Fish, Frogs, & Birds - Monday 5 p.m. for shipment next week.
5. Primates - to be handled through DLAR; availability will determine shipment.
6. Rodents from Other Institutions - These animals must be quarantined & tested. Quarantine space is limited. Please plan accordingly.
7. Arrangements need to be made for all other species on each individual order.


Animal Care and Per Diem Charges

- Once received, animals are housed in one of 14 animal facilities on and off campus
- Each cage or animal assigned a bar-coded cage card, which tracks protocol and fund code info
- DLAR provides all husbandry and veterinary services to these animals
- Assesses a per diem charge for its services
  - Per Diem rates can be found on [http://labanimal.duke.edu](http://labanimal.duke.edu)
Other DLAR Charges

- DLAR provides a wide range of other services, including:
  - Surgical and technical services
  - Pharmacy purchases
  - Diagnostic laboratory testing
  - Cryopreservation and rederivation services
  - Import and export of animals to/from other institutions
Monthly DLAR Invoices

- DLAR combines all monthly charges into invoices for researchers
  - Includes charges for animal ordering, per diem, and other services provided by DLAR
- DLAR obtains fund codes up front for all charges
- Invoices generated for each fund code used by researcher
Monthly DLAR Invoice (cont)

- DLAR uploads monthly invoices as journal vouchers.
- Revenue credited to DLAR funds codes 157-9840, 157-9841, 157-9842, and 157-9843
  - All charges assigned to GL 784000 – Lab Animal Resources Recharge
- Copies of invoices emailed to researcher and any interested parties
- Sample DLAR Invoice
Lab Animal Resources Invoice for June, 2008

Billing Period
06/01/2008 - 06/30/2008

Invoice Number: 40827
Bill for Staff Account: Doe, John 391-0000

Animal Orders

<table>
<thead>
<tr>
<th>Rec'd Date</th>
<th>Requisition</th>
<th>Protocol</th>
<th>Duke PO#</th>
<th>Vendor</th>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
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<td>6/9/2008</td>
<td>66951</td>
<td>A155-07-06(1)</td>
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<td>Duke In-House Breeding</td>
<td>Mouse</td>
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<td>6/18/2008</td>
<td>67147</td>
<td>A155-07-06(1)</td>
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<td>Duke In-House Breeding</td>
<td>Mouse</td>
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Orders Sub-Total: $0.00

Per Diem Charges

<table>
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<tr>
<th>Rec'd Date</th>
<th>Census Location</th>
<th>Description</th>
<th>Cost Center</th>
<th>Protocol</th>
<th>Care Days</th>
<th>Unit</th>
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<tbody>
<tr>
<td>6/30/2008</td>
<td>GSRBII-2025</td>
<td>Mouse Cage - Barrier</td>
<td>A155-07-06</td>
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<td>6/30/2008</td>
<td>GSRBII-2027</td>
<td>Mouse Cage - Barrier</td>
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<td>Mouse Cage - Barrier</td>
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Per Diem charges Sub-Total: $0.00

Service Center Charges

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<th>Date</th>
<th>Requisition</th>
<th>Protocol</th>
<th>Expense Class</th>
<th>Service</th>
<th>Comments</th>
<th>Quantity</th>
<th>Unit</th>
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<tbody>
<tr>
<td>6/23/2008</td>
<td>(BT# 449507)</td>
<td>A155-07-06</td>
<td>Import/Export</td>
<td>IE-All I/E Charge (Foreign)</td>
<td>Mice to Spain</td>
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<td>$</td>
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<td>IE-Dividers (f/shipping animals)</td>
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<tr>
<td>6/23/2008</td>
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<td>IE-Gel Water Packs (f/shipping animals)</td>
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Charges Sub-Total: $169.26
Lab Animal Resources Invoice for June, 2008

Billing Period
06/01/2008 - 06/30/2008

-----------------------------------------------------------------------------------------------------------

Summary For: Doe, John

Summary By Service

<table>
<thead>
<tr>
<th>Service</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Animal Orders</td>
<td>$0.00</td>
</tr>
<tr>
<td>Per Diem</td>
<td>$2,576.64</td>
</tr>
<tr>
<td>Service Centers</td>
<td>$169.26</td>
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<td><strong>Total</strong></td>
<td><strong>$2,745.90</strong></td>
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Summary By Fund Code, DLAR Code

<table>
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<tr>
<th>Code</th>
<th>Description</th>
<th>Amount</th>
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<tr>
<td>391-0000</td>
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<tr>
<td>157-9842</td>
<td>DLAR GSRB</td>
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<tr>
<td>157-9843</td>
<td>DLAR Lab, Pharmacy, Misc. Chrgs</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$2,745.90</strong></td>
<td></td>
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</table>

Summary of Animal Usage on Protocol(s) for Doe, John

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Species</th>
<th>Authorized</th>
<th>Used</th>
<th>Available</th>
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<tbody>
<tr>
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<td>Mouse</td>
<td>6108</td>
<td>57</td>
<td>6051</td>
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<tr>
<td>A150-00-06</td>
<td>Mouse</td>
<td>7568</td>
<td>807</td>
<td>6761</td>
</tr>
</tbody>
</table>

For corrections or fund code changes, please contact Arnette Williams at 684-5739 or arnette.williams@duke.edu.
QUESTIONS?