

## IACUC Policies & Procedures Manual

The Institutional Animal Care and Use Committee (IACUC) is responsible for the oversight and evaluation of the institution's animal program, procedures, and facilities to ensure that they are consistent with the recommendations in the *Guide for the Care and Use of Laboratory Animals*, the Animal Welfare regulations, and the Public Health Service policy. Its functions include inspection of the facilities; evaluation of programs and animal-activity areas; submission of reports to responsible institutional officials; review of proposed uses of animals in research, testing, or education; and establishment of a mechanism for receipt of concerns involving the care and use of animals at the institution.

- I. Appointment of IACUC
  - A. The Institutional Animal Care and Use Committee is appointed by the President of the University based upon recommendations from the Vice President for Research and Graduate Education.
  - B. The term of the IACUC Committee is two years.
  - C. The IACUC shall consist of not less than five voting members, including at least:
    1. A Chairperson;
    2. A Doctor of Veterinary Medicine, with training or experience in laboratory animal science and medicine, who has direct or delegated program authority and responsibility for activities involving animals at the institution;
    3. A practicing scientist experienced in research involving animals;
    4. A member whose primary concerns are in a nonscientific area; and
    5. An 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.
  - D. An IACUC member who meets the requirements of more than one of the categories detailed in section C above may fulfill more than one requirement.
  - E. No more than three IACUC members can be from the same administrative unit (e.g., an academic department).
  - F. Additional non-voting members may include animal care attendants, UTD safety committee members, and faculty or staff with concerns.
- II. Operating Procedures and Functions of IACUC
  - A. The IACUC was established to assess the Institution's animal programs, inspect facilities, and adopt standard operating procedures for faculty, staff and students. The standard operating procedures for care and handling of animals described in this manual were written to apply primarily to animals in current usage (mice, rats, rabbits, and cats). The use of other

animal species that may require alternative operating procedures will be evaluated by the IACUC on a case-by-case basis.

- B. Review every six months the Institution's program for animal care and use and determine its accord with the Animal Welfare Act. A written report of this review is submitted to the Vice President for Research and Graduate Education.
- C. Inspect the animal care and use facility every six months to assure accordance with the Animal Welfare Act. Inspection should be performed with at least a quorum of the IACUC committee present. (The non-affiliated member must be present at this inspection.) Any deficiencies should be noted on the report submitted to the Vice President for Research and Graduate Education.
- D. Review and investigate reasonable concerns and complaints regarding the care and use of animals.
- E. Make recommendations to the Research Compliance Office regarding facilities, procedures, protocols, personnel and training pertaining to the care and use of animals in accordance with the Animal Welfare Act.
- F. Review research, teaching and external proposals to funding agencies for proper protocols and scientific merit only as it relates to the humane and safe treatment of animals.
- G. Standard operating procedures for care and use of animals in the facility will be discussed and approved by the IACUC.
- H. Protocols will be reviewed in accordance with PHS, USDA and OLAW regulations:
  - 1. Review of the IACUC proposed new protocols.
  - 2. Each protocol will be reviewed by the chair or a designated representative should he/she be unavailable.
  - 3. New protocols are distributed to all members of the IACUC for review and comment.
  - 4. Investigators are required to submit an annual continuing review report. The report will be reviewed by the IACUC Chairperson or his/her designee.
  - 5. Modifications to existing protocols will be review by the Chair; should the Chair desire he may require that additional IACUC members take part in the review.

#### STANDARD OPERATING PROCEDURE: Animal Care and Use Complaints

I. The IACUC will be the committee that provides access to information and a channel through which complaints may be directed, anonymously if so desired and without fear of reprisal, regarding the care and use of animals.

#### II. Procedures

- A. All complaints should be directed to the Research Compliance Manager and the Chair of the IACUC, who will then notify all IACUC members.

- B. The chairperson and manager will review the complaint and if necessary begin an inquiry of the situation.
  - 1. Call a meeting of the IACUC to discuss the complaint and if necessary inspect the applicable animal care facility or instructional laboratory.
  - 2. Notify the Vice President for Research & Graduate Education of the complaint.
  - 3. Inform the responsible faculty or staff of the complaint.
  - 4. Take the appropriate action, which may include suspension of animal use privileges, as deemed necessary by the IACUC and recommended to appropriate university officials.
  
- C. If accusation of violation of the university procedures is/are determined to be valid, the IACUC will:
  - 1. Contact the involved faculty and staff of the violation and recommend appropriate steps for compliance within a specified time period.
  - 2. Monitor animal care and use by the accused party to insure compliance with the university procedures.
  - 3. Notify Vice President for Research and the appropriate Dean of the violation.
  
- D. If a violation is not corrected within the specified time or the problem is too severe for immediate remedy as determined by a majority of the IACUC then the committee will:
  - 1. Immediately suspend animal care and use by the accused.
  - 2. Notify the Vice President for Research and the appropriate dean of the suspension.
  - 3. Notify OLAW.

## STANDARD OPERATING PROCEDURES: Training of Animal Care and Use Personnel

### I. Principle

To provide adequate training for all personnel involved in the care of animals and ensure humane treatment of animals in experimentation, research and teaching at the university.

### II. Practice

- A. Animal attendants will be made aware of the Animal welfare Act and the PHS policies on the humane care and use of animals in research. This involves an appropriate understanding of the federal regulations and university policies and procedures on animal care and use by faculty and staff.
- B. Training will consist of review and study of animal care and use in the facility, including literature, training aids, and video presentations.
- C. Training will include day to day care and use of the animals in the facility. This training includes training on feeding, watering, handling and disposal of the animals.

- D. The Office for the Vice President of Research and Graduate Education will maintain an up-to-date resource reference for animal care and use including library resources, IACUC procedures and protocols and other pertinent periodicals involving research and teaching.
- E. Evaluation of training will be accomplished by the Office for the Vice President of Research and Graduate Education and the IACUC chairperson.
- F. Records of attendance for training will be maintained by the Research Compliance Manager.

STANDARD OPERATING PROCEDURE: Procurement of Research Animals

I. Principle

The use of animals in research requires healthy animals with known backgrounds.

III. Procedure

- A. Research animals will be purchased only from licensed, reputable animal dealers.
- B. All orders for research animals must be approved by Research Compliance Manager or his/her designated representative. Orders must include the relevant active protocol number.
- C. Before arrival, all investigators will complete an animal arrival notification form and submit it to the Research Compliance Office. This form indicates the number and species of animals to be delivered and the projected date of arrival of the animals. This will allow the animal facility to provide the appropriate housing and facilities and record keeping.
- D. Upon receiving the animals, the animal care attendant will notify the investigator of receipt of the animals and their condition. Any abnormal animal behavior or condition will be immediately reported to the investigator and the Research Compliance Manager.

STANDARD OPERATING PROCEDURE: Animal Health Check

I. Principle

All laboratory animals shall be observed daily for clinical signs of illness, injury or abnormal behavior by a person trained to recognize such signs.

II. Procedure

- A. Observe all animals in each cage for mortality, signs of illness, injury or abnormal behavior.
- B. If an animal is found deceased it should be placed in a plastic bag and labeled with the study number and animal number (if the latter exists). The investigator should be notified immediately. If the animal is not on

- study, place animal in plastic bag and notify the Research Compliance Manager and the investigator; they will determine if the animal should be saved for necropsy or placed in the designated freezer for disposal.
- C. If an animal is sick, injured or exhibits abnormal behavior, notify the investigator and the Research Compliance Manager. They will make the determination on the status of the animal, including if the consulting veterinarian should be called.

## STANDARD OPERATING PROCEDURE: Animal Feeding

### I. Principle

Animals receiving test materials in their diet, requiring food consumption measurement and/or receiving special diets are fed by their investigators or appointed members of the investigators lab. All other animals are fed on an ad lib basis by animal care personnel.

### II. Equipment

The food storage container and the food scoop should be sanitized on the first of every month. The date of sanitization should be clearly visible on the food storage container. All food currently in the storage container should be used completely before placing new food in the storage container in order to prevent food from becoming stale.

### III. Procedure

- A. All cages should be checked on a daily basis for the presence of food, the amount of food present and proper positioning of the feeder on the cage.
- B. All animals should be checked to ensure they are eating.
1. If animal(s) appear to not be eating check:
    - a. That animal has access to water.
    - b. That animal is not maloccluded.
  2. If unable to remedy or ascertain problem, notify investigator or Research Compliance Manager.
- C. All food should be checked for visible moisture and other contaminants. If moisture or contaminants are present, discard food, replace feeder if necessary, and replenish with fresh food. If the animal(s) is on a study receiving a special diet or a measured amount of food and the food becomes wet/contaminated, notify the investigator, one of his/her lab

- assistants or the Research Compliance Manager for instructions.
- D. Gauge the amount of food dispensed by the number of animals present in cage. Feed no more than animal(s) can consume within 48 hours.
  - E. If supplemental diet (i.e., lettuce, carrots, seeds, etc.) is indicated, place proper amount in a site where animal has ready access to item(s).

#### STANDARD OPERATING PROCEDURE: Bottle Watering of Animals

##### I. Principle

Watering via water bottle is used for many species of small animals. Water bottles are filled with clean water and fitted with rubber stoppers and sipper tubes or one piece stainless steel sipper tops. Water bottles are checked daily to ensure that the animals have access to fresh, potable and uncontaminated water. Animals are regularly given fresh water 3 times per week. Water bottles and stoppers are washed a minimum of once per week.

##### II. Procedure

- A. On days that all animals are to be watered all bottles are removed from cages and taken to the sink located in that room. Empty contents of bottle and refill with fresh water. Never “top off” a bottle. Replace all water bottles on cages.
  - 1. Level of water in bottle:
    - a. If bottle is still full-check for blockage in sipper tube, an air lock or whether animal(s) are able to reach sipper tube
    - b. If bottle is empty-check for leak in bottle, stopper not put on properly, sipper tube too close to bedding or animal playing with sipper tube
    - c. General rule: If bottle is  $\frac{1}{2}$  full or less, empty the contents of the bottle and replace with fresh water
  - 2. Debris in bottle (i.e., bedding, feces) – If present empty content of bottle, wash bottle, and fill with fresh water.

#### STANDARD OPERATING PROCEDURE: Washing Water Bottles

##### I. Principle

The washing of water bottles, stoppers and sipper tubes on a weekly basis is one way of ensuring that all animals receive fresh, potable and uncontaminated drinking water.

##### II. Procedure

- A. Remove all bottles to be washed from cages and transport to sink.
- B. Remove stoppers and place in container containing a 1:128 solution of chlorine bleach. Allow to soak for a minimum of 5 minutes. After soaking stoppers, rinse in clear running water for a minimum of 5 minutes.
- C. Bottles are washed with a bottle brush and 2:128 solution of Manu-Klenz detergent and warm water. Bottles should be scrubbed inside and out and then rinsed thoroughly to ensure that all soap residue is removed.
- D. When all bottles are washed determine the number of bottles needed. Fill those bottles with fresh water and place stopper firmly in neck of bottle. Place filled bottles on cages ensuring that each cage has a bottle. Any clean bottles and stoppers not needed at that time should be stored in the appropriate cabinet in the storage area.

#### STANDARD OPERATING PROCEDURE: Animal Waste Disposal

##### I. Principle

Animal waste is separated into three basic categories: 1) “waste” (feces, bedding, papers); 2) “dead animals” (tissues and carcasses); and 3) “solid waste” (glass, needles, scalpels). All animal waste will be collected, removed and disposed of in a safe and sanitary manner.

##### II. Procedure

- A. “Waste” is collected and placed in plastic garbage bags located in the animal care facility and transported daily by physical plant to the dumpster.
- B. “Dead animals” (including tissues) are placed in a plastic bag and stored in the freezer designated for that purpose in the animal facility. Pick up of carcasses and tissues are done on a quarterly basis by SteriCycle, Inc.
- C. “Solid waste” is collected and placed in proper containers labeled “Biohazard”. Full containers are collected, boxed and picked up at the same time and by the same company (SteriCycle, Inc.) as the animal carcasses and tissues.

#### STANDARD OPERATING PROCEDURE: First-Aid and Treatment of Animal Inflicted Bites/Scratches and Mechanical Wounds

##### I. Principle

Prompt treatment of any bite, scratch, cut, laceration or scrape.

##### II. Procedure

- A. For minor bites, scratches, cuts lacerations or scrapes, wash affected area with anti-bacterial soap and water or Betadine and water. Place a thin layer of anti-septic ointment over area and cover with a band-aid. Wear latex gloves while working to lower risk of infection until wound is healed. Notify supervisor of injury.
- B. For critical injuries, notify supervisor immediately and report to UTD Health Services. If unable to report to UTD Health Services on own or situation is life threatening, call DPS or 911.

#### STANDARD OPERATING PROCEDURES: Sanitizing Animal Rooms

##### I. Principle

Keeping animal rooms as sanitary as possible lowers the risk of illness for both the animals and personnel.

##### II. Equipment

- A. Hose
- B. Cage Cleaner
- C. Wet/Dry Vacuum
- D. Mop and Bucket (filled with 1:128 dilution of bleach and water)

##### III. Procedure

- A. Service room as indicated on SOP for that day.
- B. Remove animals and all extraneous items from room.
- C. Sweep and remove all debris from floor.
- D. Spray walls, floor, door (inside and out) and any items with sanitizer and let stand for 10 minutes.
- E. When 10 minutes elapses, rinse walls, floor and door (inside and out) with water.
- F. Plug in wet vacuum and vacuum up all excess water.
- G. Following vacuuming of water, mop entire floor with 12% bleach solution and let dry.
- H. Return animals and all extraneous items previously removed to proper place in room.
- I. Mark room clipboard with date of sanitization.

#### STANDARD OPERATING PROCEDURES: For Newly Arriving Rodents

##### I. Principle

Animal cages are prepared not more than 24 to 48 hours prior to the arrival of new animals.

II. Equipment

- A. Cage
- B. Clean water bottles and stoppers
- C. Food barrel and scoop
- D. Cage cards

IV. Procedure

- A. Label cage cards with animals identification i.e. vendor name, date of arrival, date of birth, strain, investigator name, number of animals per cage, breeding animals.
- B. Place cage in quarantine room and secure water bottle to cage.
- C. Place food in cage feeder and cage I.D. cards on cages **only after animals have arrived in facility.**

STANDARD OPERATING PROCEDURE: Cleaning Soiled Suspended Cage Racks

I. Principle

To insure that suspended caging is properly and completely sanitized.

II. Equipment

- A. Cage wash room
- B. Cage washing machine
- C. Hose
- D. Scrubbing implement

III. Procedure

- A. Ensure all that animals, cage cards, etc. are removed from the soiled rack.
- B. Remove soiled pan liners.
- C. Place soiled rack in cage wash area.
- D. Remove food hoppers form outside of cage and place inside of cage.

- E. Hose off entire rack with clear water to remove as much debris as possible.
- F. Place cage inside cage cleaner.
- G. Check to insure that sufficient chemicals/detergents are present. Turn on cage cleaner and allow to cycle.
- H. Place clean, dry cages in clean cage storage area.

#### STANDARD OPERATING PROCEDURE: Transferring Animals to Clean Suspended Caging

##### I. Principle

Animals are transferred to clean suspended caging every two weeks.

##### II. Procedure

- A. Place clean rack in appropriate room.
- B. Place pan liner(s) under appropriate number of cages and secure food hoppers to cages.
- C. Place clean rack at reasonable distance from soiled rack to easily and safely facilitate transferring animals.
- D. Starting with “first” cage, remove animal(s) from soiled cage and place in corresponding cage on clean rack. Transfer food cage card from soiled to clean cage.
- E. Continue transferring animals, in order, until all animals are housed on clean rack and no animals remain on soiled rack.
- F. If appropriate, place water bottles on cages and ensure that all animals have sufficient food. If water bottles are not to be used, connect cage racks to the automatic watering system and verify that the system is functioning.
- G. Indicate in visible site on rack the date that rack was switched and the date that rack will be due to be switched again (2 weeks).
- H. Remove pan liner(s) from soiled rack and transfer soiled rack to cage washing area.
- I. Sweep up all debris on floor and mop floor.
- J. Mark room chart with all activities performed, the temperature and humidity.

#### STANDARD OPERATING PROCEDURE: Transferring Animals to Clean Caging with Direct Bedding

##### I. Principle

Animals housed in polycarbonate caging with stainless steel wire tops are maintained on direct bedding i.e. pine shavings. The number of times that they are to be transferred to clean quarters depends on the species housed therein. The entire caging system i.e. polycarbonate cage, stainless steel wire top and the bedding should be switched at least once per week.

## II. Procedure

- A. Determine number of clean cages and lids needed and place on cart.
- B. Fill clean cages with approximately 1 inch of bedding.
- C. Proceed to room where animals to be switched are housed.
- D. Place the first cage to be switched out on the cart.
- E. Remove and set aside water bottle.
- F. Place clean lid on clean cage; place fresh food on clean cage lid; discard food from soiled cage lid.
- G. Transfer animal from soiled cage to clean cage by grasping the animal by the base of the tail. Count and note number of animals per cage while transferring. Check sex of each animal as it is transferred to determine that all cages contain same sex animals unless cage is denoted as breeders.
- H. Transfer any and all information from soiled cage to clean cage, making any changes needed (e.g. number of animals present in cage).
- I. Place lid securely on cage, replace water bottle and replace cage on rack.
- J. Proceed in same fashion until are cages have been switched.
- K. Remove soiled cages from room; remove soiled bedding to trash, then place soiled cages in cage wash area to be sanitized.

## STANDARD OPERATING PROCEDURE: Power Outage

### I. Principle

To provide a procedure consistent with university policy to deal with planned and unplanned power outages so that animal care is not significantly affected.

### II. Procedures

- A. Planned Electrical Power Outage Shutdowns:
  1. Prior to planned electrical power shutdown, the Research Compliance Manager is notified of the proposed shutdown.
  2. The Research Compliance Manager then contacts the animal care attendant and arranges for auxiliary power to be supplied to the animal quarters.
- B. Unplanned Electrical Power Outage:

1. Physical Plant will contact the Research Compliance Manager and inform them about the power outage and provide an estimate of the required time to restore power.
2. In the event that power cannot be restored within a few hours, the Research Compliance Manager will arrange for auxiliary power for the animal quarters until normal power can be restored.

## STANDARD OPERATING PROCEDURE: Euthanasia

### I. Principle

To provide a rapid and painless death to prevent or eliminate animal suffering.

### II. Method

There are many methods of euthanasia, though the most widely used method for small animals utilized in research is CO<sub>2</sub> (carbon dioxide) narcosis. This method can be and is utilized for all of the species currently housed in this facility.

### III. CO<sub>2</sub> Narcosis Method

#### A. Equipment

1. Euthanasia chamber
2. CO<sub>2</sub> tank fitted with appropriate pressure regulator

#### B. Procedure

1. Place animal in chamber as gently as possible using the proper restraint method for that species and replace lid on chamber. Turn on CO<sub>2</sub> at a low flow rate for approximately 30 seconds. Turn off gas and wait for animal to appear “down”. Turn on CO<sub>2</sub> supply for an additional 30 seconds to ensure that all room air is evacuated from the chamber. Animals may be left in chamber for approximately 30 minutes to assure death of animal.
2. If animal needs to be removed immediately then a second assurance of death must be performed.

Acceptable forms of assurance of death are:

- a. bi-lateral pneumothorax
- b. cervical dislocation
- c. decapitation

d. removal of one or more vital organs

- IV. Following assurance of death, place animal in appropriately-sized body bag and place in designated freezer for proper disposal at a later date. **Under no circumstances should carcasses be directly in the trash.**

#### STANDARD OPERATING PROEDURE: Acceptable Alternate Forms of Euthanasia

##### I. Principle

CO<sub>2</sub> narcosis may not always be an appropriate or available form of euthanasia. Acceptable alternative methods and procedures for euthanasia are listed below.

##### II. Barbiturate Overdose

###### A. Equipment

1. Syringe and needle appropriate for species and size.
2. Sodium pentobarbital or commercial euthanasia solution.
3. Proper dosage for species, size and drug used.

###### B. Procedure

1. Determine proper dosage amount and proper route of administration.
2. Properly restrain animal.
3. Perform injection.
4. Return animal to cage.
5. After death has occurred, perform assurance of death and place animal in a body bag; place in designated freezer for proper disposal.

##### III. Cervical Dislocation (For mice only.)

###### A. Procedure

1. Remove animal from cage and place on flat, stable surface.
2. Place pencil on back of neck and apply slight pressure.
3. Grasp tail at base as close to body as possible and pull straight back while still applying slight pressure to back of neck. Popping sensation should be felt if done correctly and respirations and heart beat will cease.

4. Perform assurance of death and place in freezer for proper disposal.

## STANDARD OPERATING PROCEDURE: Analgesia and Anesthesia

### I. Principle

To provide humane means of eliminating pain and consciousness in research animals in accordance with AVMA guidelines. Muscle relaxants or paralytic drugs (succinyl choline, pancuronium Br, curare, etc.) are not anesthetics and should not be used as such.

### II. Sodium Pentobarbital Anesthesia for Rats and Mice

#### A. Equipment

1. Sterile syringe and needle of appropriate size and gauge.
2. Sterile pentobarbital solution.

#### B. Procedure

1. Obtain animal to be anesthetized and weigh to ascertain correct weight.
2. Calculate out accurate dosage and prepare syringe.

Mouse – 40 mg/kg IP or IV for sedation 50-90 mg/kg IP for surgical anesthesia

Rat – 40 mg/kg or IV sedation 60-100 mg/kg IP for surgical anesthesia

3. Determine route of administration and properly restrain animal for delivery of anesthesia.
4. Following injection, place animal in cage (alone) and wait for animal to lose consciousness. Monitor animal for heartbeat and respirations.
5. If 10 to 15 minutes has elapsed and animal is still not in surgical plane of anesthesia, additional small amounts (10-20 mg/kg) of anesthesia may be administered by the same route.
6. Animal should be monitored frequently throughout course of procedure.

## PROGRAM OF ADEQUATE VETERINARY CARE

### FACILITIES

Animal Rooms will be used solely for animals involved with approved activities. The University of Texas at Dallas shall be responsible for providing all equipment necessary to operate the animal facilities. The veterinarian shall be available for consultation on procurement and operation of the equipment.

#### DISEASE PREVENTION AND TREATMENT

Procurement of pathogen-free animals is necessary to prevent disease. Every effort will be made to maintain separation of species to limit potential cross-species transmission of disease.

Diagnosis of animal disease will be the responsibility of the consulting veterinarian. Whenever an illness or injury is discovered, the investigator shall notify the veterinarian and/or Research Compliance Manager; after consultation with the veterinarian, the investigator will make the determination whether or not to euthanize the animal. Euthanasia shall be conducted according to the AVMA guidelines. If treatment is elected, the veterinarian should be contacted. Dr. Myer's office number is (214) 341-8392. His home phone number is (972) 231-4835.

Veterinary care will be available at all times. If Dr. Myer is going to be unavailable, arrangements will be made to provide a back-up veterinarian. Veterinary visits to the facility will be a minimum of once per week and more often if needed.

#### USE OF ANESTHETIC DRUGS

A program has been established to ensure the appropriate use of drugs. The University of Texas at Dallas Institutional Animal Care and Use Committee will review the selections and dosages of anesthetics, analgesics, and tranquilizers. The consulting veterinarian shall be available for consultation regarding the use of those agents.

#### EUTHANASIA

Procedures for euthanasia are reviewed by The University of Texas at Dallas Institutional Care and Use Committee and the consulting veterinarian. Euthanasia is performed according to AVMA guidelines.

#### PROCEDURAL CARE

Investigators must anticipate any probability of adverse events to the procedural animals. Pain-and stress-relieving measures must be detailed in the application. The IACUC, which includes the consulting veterinarian, will determine the suitability of the proposed procedures.