

MACALESTER COLLEGE
INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE
ANIMAL USE FORM

PLEASE NOTE: This form must be completed & submitted in triplicate (unless otherwise indicated) to the Macalester College IACUC Chair, & approved by the IACUC prior to any research or teaching activity involving live vertebrate animals. Attach additional sheets as necessary.

Leave Blank
Protocol #: _____
Approval Date: _____
Expiration Date: _____

Title of project, experiment, or activity:	
Faculty or staff member(s) involved:	Student investigator(s):
Department:	Proposed date(s) of study:
Application date:	Proposed expiration date: (If not indicated, protocol will expire in three years.)

The following information is used to determine the type of review appropriate for this proposal. Based on the criteria listed below, please indicate the type of review you are requesting.

_____ **Category 1A (Extension).** This review is appropriate if the protocol is identical to a protocol that has received prior approval except that the student participants may have changed. This review should be used to increase the total number of animals on the original protocol or extend its expiration date. For this review, give the Protocol Number assigned to the original protocol.

How many animals do you wish to add to this protocol? _____

Rationale:

What date do you now wish this protocol to expire? _____

I certify that the information provided on this form is complete and correct to the best of my knowledge.

Principal Faculty Member's Signature _____

THIS COVER SHEET IS ALL THAT IS REQUIRED FOR A CATEGORY 1A REVIEW. SUBMIT TWO COPIES TO THE IACUC CHAIR.

_____ **Category 1B (Modification).** This review is appropriate if the protocol is identical to a protocol that has received prior approval except that the student participants may have changed AND that a minor change has been made in one of the methods. Examples of minor changes include different drug dosages, different animal strains or sex within the same species, substitution of drugs within the same family (mechanism of action,) minor changes in experimental, care, or euthanasia procedures.

For this review, give the Protocol Number for the original protocol:

Describe the change(s) you wish to make and the rationale for this change(s). Include appropriate references from the scientific literature for any changes in drugs or dosages.

I certify that the information provided on this form is complete and correct to the best of my knowledge .

Principal Faculty Member's Signature _____

PAGE 1 AND 2 ARE THE ONLY PAGES REQUIRED FOR THIS TYPE OF REVIEW. SUBMIT TWO COPIES OF THESE PAGES TO THE IACUC CHAIR.

_____ **Category 2 (Chair Review).** This is appropriate if ALL of the following criteria are met:

1. This proposal is primarily for work of limited scope conducted by students as a component of their education. Examples include exercises, experiments or projects associated with the laboratory component of a course, or undergraduate research conducted as independent study or advanced course work or during a summer program.
2. At least one of the faculty members listed above is a member of Macalester's IACUC and, as such, approves of the protocol as written.
3. The IACUC member listed above will train and supervise the students' work involving animals
4. The pain/discomfort induced during or after the experiment does not exceed Category C (See page 7 for description)
5. The protocol will expire at the end of the term or summer in which it is submitted or after three months, whichever is longer.
6. **All** of the methods, drugs and dosages to be used in the work have been approved by the IACUC within the last three years.

_____ **Category 3 (Expedited Review).** One or more of the criteria for Category 2 are not met, but none of the criteria for Category 4 apply. Examples include new studies or approaches, or large studies driven primarily by faculty research plans where the protocol may be active for several months or years,

_____ **Category 4. (Full Review).** Required if any of the following apply:

- A. The pain/discomfort induced during or after the experiment exceeds Level C.
- B. The protocol requires significant changes in the physical space or in the routine animal care procedures within in animal facility.
- C. The protocol proposes the introduction of agents into the animal facility that may be harmful to personnel or neighboring animals. Examples include radioisotopes, infectious agents, or ambient UV light.

REVIEW CATEGORIES 2-4 REQUIRE THE COMPLETION OF THE ENTIRE PROTOCOL FORM IN TRIPLICATE.

I. ANIMAL REQUIREMENTS

Species: _____ Approximate Age or Weight: _____

Sex: _____ Source (Vender): _____

Total number of animals to be used in the study: _____

Maximum number of animals housed at any one time: _____

Location where animal manipulation will occur: _____

Primary housing location: _____

Will animals be housed outside the central animal facility longer than 12 hrs?

If yes, provide location and justification: _____

HOUSING CONCERNS FOR RODENTS: In an Appendix labeled “Deviations from Standard Housing for Rodents” provide description, justification and alternative plan for all unchecked items:

- _____ Conventional bacteriological and viral status
- _____ Conventional quarantine duration and procedure
- _____ Conventional methods of transportation to the facility and within the building
- _____ Housed in standard cages
- _____ Housed at standard number of animals/cage
- _____ Standard levels of behavioral management including environmental enrichment and social grouping
- _____ Standard food and water *ad libitum*
- _____ Standard environmental conditions: lighting intensity and duration; ventilation, humidity, temperature, noise control.
- _____ Housed only with other members of the same species
- _____ Standard bedding changes and cage sanitation
- _____ Animals pose no special health hazards to personnel
- _____ Veterinary treatment or euthanasia is authorized for any animal in this study deemed by an animal care worker to be in need of such relief due to injuries or illness inflicted by cage mates or animal protocols. (Normally, animal care workers will attempt to contact the investigator before euthanizing the animal, but suffering animals will be euthanized without investigator approval if the investigator cannot be reached.)

HOUSING CONCERNS FOR NON-MAMMALIAN VERTEBRATES: In an Appendix labeled “Deviations from Standard Housing for Non-Rodents” provide a description, justification and alternative plan for all unchecked items: (NOTE: The Animal Facility is not licensed for the care of non-rodent mammals. Invertebrates are not regulated by the IACUC.)

The animal facility at Macalester provides standard housing and care for rodents. Upon the introduction of a non-mammalian vertebrates, it is the responsibility of the faculty investigator to provide training and/or documentation to the facility manager, Sarah Sjogren, outlining standard housing and care conditions for that species. Standard care will be provided to non-mammalian vertebrates by animal care workers as time allows. No special care, including special feeding, veterinary care, or environmental monitoring will be provided unless arrangements are made directly with the facilities manager in advance.

- _____ I have provided documentation and/or training to the Animal Facilities Manager regarding the conditions required for standard care of this species.
- _____ I have made arrangements with the Animal Facilities Manager for the provision of standard care to this species.
- _____ This species requires no special care or I have made arrangements for such care in consultation with the Animal Facilities Manager.
- _____ The animals pose no special health hazards to personnel
- _____ Veterinary treatment or euthanasia is authorized for any animal in this study deemed by an animal care worker to be in need of such relief due to injuries or illness inflicted by cage mates or animal protocols. (Normally, animal care workers will attempt to contact the investigator before euthanizing the animal, but suffering animals will be euthanized without investigator approval if the investigator cannot be reached.)

II. JUSTIFICATION OF ANIMAL USE (Expand allotted space as needed)

Purpose of the study: Briefly explain in language understandable to a layperson the aim of this study and why the study is important to human or animal health, the advancement of knowledge, or the good of society, including the training of future scientists.

Give your rational for the use of animals in this study: (The rationale should include reasons why non-animal models cannot be used.)

Justify the appropriateness of the species used: (Species selected should be the least sentient of all realistic options.)

Justify the number of animals to be used: (Numbers should be minimum number required to give statistically significant results.)

III. DESCRIPTION OF EXPERIMENTAL DESIGN AND ANIMAL PROCEDURES

Attach All Methods: Please attach to this form a copy of relevant laboratory procedures to be performed in this study.

Outline of Experimental Design: Give an overview of the experimental design including the experimental groups, number of animals per group, treatments, and methods of assessing treatment effects. Provide citations for published studies upon which this work is directly based. (Expand allotted space as needed)

Indicate which of the following procedures are included in this study. For each checked procedure, provide the requested information.

_____ **Animal Identification Methods:**

Method:

Marking frequency:

Sedation / Anesthesia:

Method of restraint:

_____ **Experimental Injections or Inoculations:** (Note: Drugs given to reduce or eliminate pain are described in a later section.)

Substance:

Volume per dose:

Dose:

Schedule of injections (frequency & duration)

Site/route of injection:

Sedation / Anesthesia:

Method of restraint:

Relevant literature citations:

_____ **Blood Withdrawal:**

Volume:

Site of withdrawal:

Frequency:

Method:

Sedation / Anesthesia:

Method of restraint:

_____ **Radiation:**

Dose:

Schedule:

Relevant literature citations:

_____ **Prolonged Restraint** (longer than that required for routine procedures):

Method:

Duration:

Acclimation schedule:

Sedation / Anesthesia:

Relevant literature citation:

_____ **Other potential stressors:** (Including water or food deprivation, noxious stimuli, environmental stress)

Type of stress:

Methods used to monitor and minimize animal distress:

_____ **Experimental protocols using morbidity or mortality endpoint criteria** (e.g. weight loss or gain, tumor size, inability to eat, drink or perform other functions, behavioral abnormalities, clinical symptoms, signs of toxicity, death, etc.)

List criteria to be used to determine when euthanasia should be performed. [Death as an endpoint must always be scientifically justified.] (Expand space as needed)

Relevant literature citations:

_____ **Special need for veterinary care.**

Veterinary care required:

Who will provide such care and how will he/she be trained?

_____ **Survival Surgery** Attach an Appendix labeled "Survival Surgery" that includes the following information:

- Describe pre-operative procedures (fasting, analgesic loading, etc)
- Describe surgical procedure including aseptic technique (a detailed protocol should be attached)
- Describe method used to monitor and adjust level of anesthesia during surgery.
- Describe methods used to prevent post-operative infection.
- Describe support provided during recovery from anesthesia
- Who will actually perform the surgery and what are their qualifications and training?
- Where will the surgery be performed and post-operative care provided?
- Describe post-operative care required including frequency of observation. Who will provide post-operative care. [Note: if animal facility personnel are expected to perform these duties, their willingness and ability to do so much be determined in consultation with Sarah Sjorgren prior to submission of this protocol.] Include a method for detection and management of post-operative complications during working hours, after hours and on weekends and holidays.
- Are paralytic agents to be used during surgery? If yes, please describe how ventilation will be maintained and how pain will be assessed and managed.
- Has major survival surgery¹ been performed on any animal prior to being placed in this study? If yes, please explain and justify.
- Will more than one survival surgery be performed on an animal while in this study? If yes, please explain and justify.

¹ Major survival surgery penetrates and exposes a body cavity or produces substantial impairment of physical or physiologic functions and includes laparotomy, thoracotomy, craniotomy, joint replacement, or limb amputation.

IV: PAIN OR DISTRESS CLASSIFICATION

Please categorize the overall pain, distress, and/or trauma that the animal(s) involved in this study will encounter. (Categories adapted from the Swedish Classification of Research Experiments, and the Scientist's Center for Animal Welfare bulletin "Categories of biomedical experiments based on increasing ethical concerns for non-human species".)

- _____ A) Experiment is completely non-invasive and non-traumatic. Animals will be observed without manipulation of their environment.
- _____ B) Experiment is expected to produce little or no discomfort. This category includes: occasional simple invasive procedures such as blood sampling or injections; physical behavioral testing without significant restraint or noxious stimuli; experiments on completely anesthetized animals that do not regain consciousness; and standard methods of euthanasia that induce rapid, painless unconsciousness, such as anesthetic overdose.
- _____ C) Experiment is expected to produce some discomfort. This category includes procedures causing minor discomfort, anxiety, illness, or pain of short duration, such as: behavioral experiments on awake animals involving restraint; food/water deprivation for short periods (<24 hours); limited application of noxious stimuli from which escape is possible or not possible; social isolation/crowding; repetitious minor invasive procedures, such as frequent blood sampling; surgical procedures under anesthesia from which the animal will recover consciousness; exposure of blood vessels and implantation of chronic catheters; and gonadectomy. Category (C) procedures incur additional concern in proportion to the degree and duration of distress or discomfort.
- _____ D) Experiment is expected to involve significant but unavoidable distress or pain. This category includes: induction of behavioral stress to test its effect; major surgical procedures under anesthesia that will result in significant post-operative discomfort or functional deficit; repeated application of noxious stimuli from which escape is not possible; and prolonged periods (several hours or more) of physical restraint. Category (D) experiments present an explicit responsibility on the investigator(s) to explore alternative designs to ensure that unavoidable distress is minimized.
- _____ E) Experiment is expected to inflict severe pain on unanesthetized conscious animals. Experiments in this category are generally considered inappropriate for research at Macalester College; IACUC approval for category (E) experiments is highly unlikely. Such experiments include: use of muscle relaxants or paralytic drugs for surgical restraint without the concomitant use of anesthetics in sufficient dosage to produce loss of consciousness; severe trauma inflicted on unanesthetized conscious animals; recovery of consciousness after severe physical trauma has been inflicted under anesthesia; and any other traumatic procedures performed without the use of anesthetics, analgesics, and/or tranquilizers, including toxicity testing and exposure to radiation.

V. ANESTHESIA, ANALGESIA, TRANQUILIZING AND OTHER AGENTS

Agent:

Dosage:

DEA Schedule:

DEA license #:

Route of Administration:

Schedule of Administration:

Relevant literature citations:

VL METHOD OF EUTHANASIA AND/OR DISPOSITION OF ANIMALS AT END OF STUDY

Indicate the disposition of animals at the end of this study.

If animals are to be euthanized provide:

Method and/or Chemical Agent:

Dose (if relevant):

Is method recommended by AVMA Panel Report on Euthanasia?

(Note: unanesthetized cervical dislocation and decapitation are not among the recommended methods.) For further information see:

<http://www.AVMA.org/resources/euthanasia.pdf> (Guide is available from this page as "euthanasia.pdf")

If method is not approved, justify its use:

VI. HAZARDOUS AGENTS

Use of hazardous agents requires the approval of the faculty or staff member charged with the direction of that agent.

Hazardous Agent	Yes	No	Agent	Date of Approval	Initials of Director
Radiochemicals					Heather McCollar
Biological Agents					Steve Sundby
Hazardous Chemicals					Tom Varberg
Recombinant DNA					NA

Study is being conducted at Animal Biosafety Level ___1___2___3___4

(No hazardous agents = level 1)

Describe the practices and procedures required for safe handling and disposal of contaminated animals and material associated with this study. Describe methods for removal of radioactive waste and the monitoring of radioactive materials.

VI. SIGNATURES

By signing this form, we declare the following:

- That the information given in the protocol is accurate to the best of our knowledge.
- That I have applied for card access to the animal facility
- That I have filed a Health and Safety Form with the Manager of the Animal Facility
- That I have received or will receive training in all experimental procedures involving animals, and that I will be supervised in the procedure until I gain adequate proficiency to work independently.

Faculty Investigator: _____
Signature DATE

Student Investigator: _____
Signature DATE

Student Investigator: _____
Signature DATE

Student Investigator: _____
Signature DATE

Student Investigator: _____
Signature DATE

Student Investigator: _____
Signature DATE

Student Investigator: _____
Signature DATE