

Project Categorization of Pain and Distress in Laboratory Animals

Category I: Use of non-living tissues, invertebrates, fertile eggs or observational studies

Most category I level projects require IACUC approval, as specified below, and are to be submitted using one of the three abbreviated forms described here. All applicable collection or access permits must accompany the submission along with a cover letter to include the project title and any other pertinent information that could not be included on the application short form. Proposals identified by a higher pain category level (II, III, IV or V) are to be submitted using the standard protocol application for animal care and use. Contact the University Animal Care office for assistance in categorizing/inquiring about an animal care and use proposal.

The *abbreviated component for the use of non-living tissues* covers investigations that involve acquiring, handling or manipulating preserved non-human tissues or specimens (i.e., excrement, hair, feathers, bone, or secretions) that are to be obtained from archived sources or opportunistically in the field. The Principal Investigator must be able to provide details as to the humane methods in which a sample was obtained or collected as requested by the IACUC.

The *abbreviated component for the use of invertebrate species or fertile eggs* covers investigations that entail the use of invertebrate species or manipulation of fertile eggs that does not extend beyond a defined stage of gestational development. For the use of invertebrates, the IACUC requires review and approval of projects that entail permission being sought from a government agency or granting of special permission (whether written or verbal) by private individuals to access, collect, or deploy the species being studied, even if specimens are obtained commercially. The provision for IACUC approval of invertebrate studies also extends to work involving animal species considered venomous or a threat to public health, endangered, threatened or of special concern. Although IACUC approval is not mandatory for all invertebrate work, it is highly recommended that investigators pursue committee approval for graduate or research projects to be kept on file with the University Animal Care office should questions arise.

The *abbreviated component for observational animal studies* covers purely observational studies that do not involve the handling or disturbing of a live animal in its natural habitat. The IACUC requires review and approval of observational studies that entail investigator permission from a government agency or granting of special permission (whether written or verbal) by private individuals to approach the species or to gain regional access to conduct the study. Although IACUC approval is not mandatory for observational studies not requiring permits, it is highly recommended that investigators pursue committee approval for graduate or research projects to be kept on file with the University Animal Care office should questions arise.

Category II: Activities that may produce little to no pain or distress in animals

In General: Category level II investigations involve the handling or manipulation of live vertebrate species that produce little or no physical pain or distress and would not warrant relief of discomfort.

Animal Care is to comply fully with University Animal Care specifications and standards pertaining to routine husbandry practices, physical space requirements and food/water restrictions for the proposed species. *Procedures* include momentary and skillful restraint, administration of intra-venous, intra-muscular, intra-peritoneal, sub-cuticular or intra-dermal injections and oral dosing of IACUC approved compounds; field studies that involve IACUC approved trapping and release methods; non-invasive identification methods (i.e., superficial tag placement, ear notching), non-invasive tissue sampling methods, or to obtain intra-vascular blood samples (with pre-sedation as deemed appropriate). *Chemical usage* includes the administration of harmless substances such as antibiotics, sedatives or tranquilizers. The use of anesthetics or analgesics is not appropriate for this category. *Euthanasia* methods are limited to intra-venous administration of IACUC approved compounds (e.g., barbiturates); inhalation methods that induce rapid unconsciousness (e.g., isoflurane, carbon dioxide), or an IACUC approved physical method preceded by chemical immobilization or sedation.

Category III: Activities that may produce mild to moderate pain or distress in animals

In General: Category level III investigations may produce minor distress, discomfort or short-duration pain in live vertebrate species in which every effort is made to relieve discomfort and to ensure the animal's well being by providing supportive care.

Animal Care that retracts from University Animal Care specifications and standards pertaining to routine husbandry practices, physical space requirements or food/water rations or restrictions for the proposed species. *Procedures* include the use of local anesthetics, IACUC approved adjuvant systems and techniques, tumor harvesting, ascites production, repetitive chemical restraint and minimally invasive surgical procedures such as chronic catheter implantation, tissue biopsy, superficial internal transponder placement or routine headstage implantation. Procedures conducted on anesthetized subjects include retro-orbital sinus bleeding, tattoo identification or invasive tissue sampling methods. Investigators are expected to outline an appropriate supportive care regimen for manipulations known to impair an animal's ability to eat, drink or ambulate normally. *Chemical usage* includes the administration of dissociative and general anesthetics, substances that produce a mild to moderate, but tolerable localized tissue reaction, including low-level infectious or chemical agents. The use of analgesics will be required if deemed necessary by the IACUC. *Psychological distress* is limited to behavioral testing on conscious animals whereas mild to moderate noxious stimulation is produced for short periods and escape is impossible *or* such stimulation is introduced for longer periods and escape is possible. *Euthanasia* methods that support the scientific objective and are performed within the recommendations of the American Veterinary Medical Association panel's guide on euthanasia, such as exsanguinations and total body perfusion/organ fixation under general anesthesia, IACUC approved physical means without prior chemical sedation and intravenous administration of potassium chloride on anesthetized subjects.

Category IV: Activities that involve analgesic relief of significant pain or distress in animals

In General: Category level IV investigations may produce significant pain or distress in live vertebrate species in which every effort is made to alleviate pain or discomfort with analgesics and to ensure the animal's well being by providing adequate supportive and veterinary care. Such projects present an explicit responsibility on the part of the Principal Investigator to justify the experimental design and to employ alternative methods wherever possible to ensure that pain and distress is minimized or avoided.

Procedural considerations include invasive surgical procedures that involve significant post-operative discomfort, multiple major survival surgeries, organ transplantation/grafting, intrusive craniotomies or the use of paralytic drugs as part of the approved anesthetic protocol. Survival studies of this nature require that the Principal Investigator maintain post procedural animal health records documenting monitoring assessments, pain management, and supportive veterinary care schedules. *Chemical usage* includes the administration of caustic substances with moderate to high-level tissue reactivity, inducing radiation sickness or compounds that will significantly impair cognitive function or critical physiological processes.

Category V: Activities that produce substantial or unavoidable pain and distress in animals

In General: Category V level investigations involve producing substantial or unavoidable pain and distress in live vertebrate species whereas the means to alleviate or manage adverse suffering is contraindicated. Such activities are considered highly questionable and must be deemed irrefutably necessary by design to receive IACUC approval.

Chemical usage includes the use of paralytic agents on conscious animals without general anesthesia, administration of substances whose effects are unknown or exposure to compounds that may prolong suffering or result in death. *Procedural considerations* include conducting novel biomedical experiments with a high degree of invasiveness or maintaining study animals with marked cognitive or physical impairment without providing the appropriate means of supplementation or veterinary care. *Euthanasia* methods which deviate from the recommendations of the American Veterinary Medical Association Panel's guide on euthanasia in support of the scientific objective, including death as an endpoint.