

Overview:

Substance Table: Each procedure will include a substance table, either on the “main” page of the procedure (immediately after selecting the procedure type), embedded elsewhere within a procedure, such as the post-operative page of a surgery (for analgesic administration), or via an “Additional Substances” page, which is the next-to-last page within every procedure type.

1.0 * Please add the substances and indicate the order in which they are to be administered:

Add													
	Substance Type	Dose	Maximum Dosage Volume	Route Of Administration	Route Of Administration Site(s) of Injection	Number of Administrations	Range of Needle Gauge Size	Desired Effect	Duration of Survival	Hazard?	Pharmaceutical Grade? (Justification if not)	Pain or Distress? (Description if so)	Reviewer Shortcut
Update	Test Substance Agent	Chemical 100 mg/kg	200 ul	Intraperitoneal	Lower abdomen	Twice daily for 5 days; 10 administrations total	27-30G	Induce transgene	Up to 35 days		yes	no	SmartForm
Delete													

Substance: Every substance in the PI Library is populated here. Select the appropriate substance for the procedure.

Type: Embedded within the selected substance, indicated when creating the substance.

Dose: Enter a specific dose or dose range when appropriate.

Maximum Dosage Volume: Enter a maximum **volume** (e.g. ml, ul etc.) to be administered during the procedure.

Route of Administration: Select the appropriate route on the list. If it is not listed, you may select “Other” and then enter the route in the corresponding text box.

Site(s) of Injection: Indicate the specific site of injection (lower abdomen, scruff of back, etc.).

Number of Administrations: Indicate **both the number and frequency of administrations**.

Range of Needle Gauge Size: Enter a range here if applicable, which will not lock you in to a specific size.

Desired effect: Indicate the anticipated effect of the substance here.

Duration of survival: Indicate how long the animals will survive post-procedure here.

Hazard? and Pharmaceutical Grade? Auto-populated from the substance entry.

Pain or Distress? Indicate “yes” here if the substance you are administering will induce illness or cause the animal pain or distress. You do not need to account for the transient pain of an injection in this field.

Training, Qualifications, & Attachments:

This page is the last page of every procedure, and field 1.0 should be used to indicate how new lab members will be trained to perform the procedure indicated. Use position names rather than specific personnel names here in case laboratory personnel changes.

Any attachments that you would like to follow the procedure (e.g. MSDS for substances administered, schematics for a specific implant, images of a specialized technique, etc.) should be uploaded under 2.0 on this page.

Within procedures, guidance is provided on the right-hand side of the screen.

General Procedure Entry Guidelines:

- 1) Procedures should be written so that they can stand alone (i.e. don't reference other specific procedures) and don't contain protocol specific information. This allows them to be reused across multiple experimental groups and protocols.
- 2) Select the most appropriate procedure type for the procedure being performed.
- 3) Procedures should be given informative names (e.g., "Administration of Compound X" rather than "IP Injection").
- 4) Procedures should capture a single activity performed on an animal at a specific point in time.
- 5) Don't repeat dosages in the text of procedures, use the substance tables.
- 6) All substances (i.e. drugs) administered to animals must be described in a substance table within the relevant procedure.
- 7) Anesthetics should only be listed in Anesthetic procedures.
- 8) Analgesics should only be listed in the Pain Management Protocol Substances table.
- 9) Only use the "Other" procedure type if no other procedure type is applicable.
- 10) Don't use personnel names in the procedures as personnel can change resulting in discrepancies. It is acceptable to refer to positions in the laboratory (e.g., PI, laboratory manager, senior post-doc, etc.).
- 11) Provide a response to the specific question asked in each section. Do not repeat information. Provide a response to only what is asked. Questions are generally not redundant and are designed to gather specific information about the procedure.
- 12) Only use the term "daily" if animals are monitored by lab staff seven days a week. For weekdays, indicate monitoring will be performed Monday-Friday.

Substance Note:

For substances classified as [Biological/Infectious agents](#) or [Cell line/serum products](#), please note the following:

Each PI must complete an rDNA registration in NSIS if using recombinant DNA in animal studies. Viral vectors and other genetically modified biological hazardous agents must be registered with and approved by the Institutional Biosafety Committee (IBC) before any animal procedure may be performed. Your current work must be described in the animal protocol as well as reflected in your recombinant DNA registration. It is strongly recommended that you submit your rDNA registration to the IBC before you submit your final Animal Study Protocol (ASP). Please note that the work in the rDNA registration must also be included in the ASP therefore you should continue to complete this section and then complete your rDNA registration. If you have any questions about this process or need assistance with your rDNA registration, please contact Iwona Spath in the Office for Research Safety (i-spath@northwestern.edu; (847)-491-5581).

AAP

- 1) AAP Name: Provide AAP name and number. (You can simply provide the name on the Procedure Definition page.)
- 2) Please enter any additional information not covered by the AAP Document: Describe any deviations from the AAP here. You may need to enter tracing agents (for some Imaging AAPs) or other substances on the “Additional Substances” page of this procedure. Consult the individual AAP for guidance. AAPs are found on the [IACUC website](#).

Administration of Substances

- 1) Please add the substances and indicate the order in which they are to be administered:
 - a. In a single procedure, only list substances that are given together at the same point in time. If there are multiple substances administered to the same animals at different time points, use separate procedures.
 - b. Include diluents and/or vehicle controls for the substances when appropriate.
- 2) Describe the procedure, including any combinations of substances:
 - a. Describe procedure technique (especially for retro-orbital administration, gavage administration, etc.). If combinations of substances will be administered (vehicles, controls, etc.) please list them here. Again, do not repeat information already included in the substance table.
- 3) Describe monitoring:
 - a. Address monitoring in the immediate time period after administration (e.g. in the case of gavage) or monitoring for potential adverse effects of administering the substance.

Alert Animals: Behavioral Testing

Use this procedure for animals that voluntarily perform or are trained to perform a task.

- 1) Describe the Method of Behavioral Testing: What is the behavioral test? If any substances are administered during the behavioral testing, they can be included in the Additional Substances table on the next page of the procedure and their use addressed in the procedure description in this text box.
- 2) Describe the Duration and Frequency of Testing: Specify the intervals between training sessions and how long each session will last.
- 3) Describe how animals are acclimated to the testing: Describe the acclimation period animals will be provided for the testing device or session.
- 4) Describe how animals are monitored during the testing period: How are animals monitored while they are in the session? Be specific and include criteria for removal from the session.

Alert Animals: Forced Exercise

Use this procedure for tests where the animals cannot voluntarily stop performing the task without some type of negative reinforcement (e.g. foot shock).

- 1) Describe the method of exercise and justify why forced exercise is required: Describe the forced exercise procedure and include justification here. If any substances are administered during the behavioral testing, they can be included in the Additional Substances table on the next page of the procedure and their use addressed in the procedure description in this text box.
- 2) Describe duration and frequency of exercise: Specify the intervals between exercise sessions and how long each session will last.
- 3) Describe how animals are acclimated to the exercise: Describe the acclimation period animals will be provided for the exercise session.
- 4) Describe how animals are monitored during the testing period: How are animals monitored while they are in the session? Be specific and include criteria for removal from the exercise session.

Anesthetic Regimen

An anesthetic regimen procedure type is needed for all surgical procedures and any other procedure that is performed under anesthesia. The anesthetic regimen is embedded in surgical procedures while for other procedure types, the regimen must be listed as a procedure in the experimental group.

If there are alternative anesthetic regimens (e.g. ketamine/xylazine vs isoflurane), it is preferable to describe them in separate procedure, then to add both regimens to the surgery or experimental group.

- 1) Please add the anesthetics and indicate the order in which they are to be administered: Add anesthetics as substances to the substance table. If you are using other substances as part of the anesthetic regimen (e.g. pre-anesthetic agents, anti-cholinergics, paralytics, reversal agents), they should be listed in the Additional Substances table of the anesthetic regimen. Substances like artificial tears should be included within the surgery procedure during which they are administered as opposed to the anesthetic regimen.
- 2) Describe administration of anesthetics (i.e., to be used in combination or as alternatives): What combinations (e.g. Ketamine/Xylazine) of anesthetics will be administered? Only mention anesthetics listed in this procedure in this text box.
- 3) Describe anesthetic monitoring and additional dosing anesthetics if necessary: Describe the method for ensuring that an animal is under the appropriate plane of anesthesia here (i.e. toe pinch), what vitals will be monitored and how often during the anesthetic event, and how additional anesthetics will be administered if required.
- 4) Describe how animals will be recovered from anesthesia: Indicate how animals will be monitored before returning to the home cage.

Breeding

- 1) Breeding system: Pair vs. Trio (or Harem) and continuous vs. interrupted.
- 2) Number of breeders and young expected per cage: This refers to an individual cage. If you are pair breeding it would be 2 adults and X offspring while trio breeding would be 3 adults and X offspring where X is the maximum number of pups expected in the cage.
- 3) Weaning age: If you are weaning when the animals are over 21 days, this is considered an exception to the Mouse Breeding and Housing Density Policy and must be justified on the Animal Care Exceptions page of the protocol. Be sure that your answer to this question is mirrored on the Animal Care Exceptions page of the protocol.

Core Lab Procedure

- 1) Please indicate the details regarding this procedure and the lab that will be performing it (PI, protocol number, etc.): List the PI's lab that will be performing the procedure, the protocol number the core procedure is from, and the procedure name from that protocol. Do not include "version numbers" of procedures in this description. For example, if the procedure is titled "Kidney Transfer v3," just indicate that the "Kidney Transfer" procedure will be performed by the core.
- 2) Is this a survival surgery? Mark "Yes" or "No." If "Yes," indicate whether the surgery is major or minor.

Death as an Endpoint

- 1) Description of the procedure and provide scientific justification on these studies: A clear justification for why animals must be allowed to die with no intervention must be provided (i.e. a Scientific Justification) along with a description of the procedure.
- 2) Duration of survival: What is the anticipated timeline from initiation of the study to the death of the animals?
- 3) Describe how animals will be monitored and the frequency of monitoring: What specific signs will be observed for and how often?
- 4) If this procedure will potentially cause pain and distress, how will it be relieved? If possible, indicate how pain and distress will be relieved. Chemical methods (i.e. analgesics) can be added in Table 5.0 below this question.

Effect of trauma, burns, pain, or physical injury

Use this procedure type only for procedures that intentionally induce trauma, pain, or injury (i.e. this is not for unintended consequences).

- 1) Description of the procedure in detail: Provide a detailed description of this procedure.
- 2) If this procedure will potentially cause pain and distress, how will this be relieved? Describe, if possible, how pain and distress can be relieved.
- 3) Alleviation methods: Chemical methods (i.e. analgesics) can be included in this table.
- 4) What potential impairment can be expected from the procedure? Describe any immediate or long-term impairments that may develop as a result of this procedure.

- 5) What is the duration of survival after the procedure? How long will the animals survive after the procedure?

Euthanasia

- 1) Will drugs be employed during the euthanasia procedure? If drugs are used in the euthanasia procedure, mark “Yes” and add drugs to the substance table.
1.1 Anesthetics: Add any anesthetics or other drugs (e.g. CO₂) to this table.
- 2) Are you performing decapitation or cervical dislocation without anesthesia? Mark “Yes” to this field if you are not using any anesthetic agents (including CO₂) for euthanasia.
2.1 Scientific Justification: Provide a scientific justification for why the procedure must be done without anesthesia (provide references).
- 3) Method(s) of Euthanasia: For each Euthanasia technique, list the primary and secondary (physical) methods of euthanasia.
 - a. Verify that the euthanasia method is consistent with the other procedure(s) in your experimental groups page within the protocol.
 - b. If the method will be used on embryos or neonates, mark “Yes” and verify that the method is consistent with the IACUC policy on Euthanasia of Rodent fetuses and neonates.

General Note: It may be preferable to separate euthanasia methods into more than one procedure to prevent confusion regarding which method is used in conjunction with other procedures. For example, a breeding group may only need a carbon dioxide inhalation euthanasia procedure while other experimental procedures may require euthanasia while under anesthesia (e.g. terminal blood collection).

Hybridomas

- 1) Scientific Justification: Provide a justification why non-animal (e.g. in vitro) methods cannot be used and that the use of animals is essential.
- 2) Describe the frequency of monitoring: Describe how often the animals are monitored and what monitoring parameters you will be using (CCM Pink Card, etc.).
- 3) Describe the procedure, volume, and frequency of fluid collection: Describe the induction procedure and volume and frequency of fluid collection.
- 4) Describe the methods used to avoid or minimize discomfort, distress, and pain: Describe methods used to minimize or prevent pain and distress.
- 5) Alleviation methods: If substances are used to alleviate pain and distress, add them to this table.

Identification Only

- 1) Indicate the method(s) of identification.
1.1) Provide a scientific justification for toe clipping. Refer to the IACUC Policy on Toe-Clipping of Rodents.

Note: Tattooing may require a separate procedure to describe how tattooing is performed. Tattoo ink should also be included as a substance on the “Additional Substances” page of the procedure.

Imaging

- 1) Please add the contrast agent(s) administered during the imaging session: Add the contrast/tracing/imaging agent as a substance here.
- 2) Will anesthesia be used during this procedure? Yes/No
 - a. If yes, 2.1) Select Anesthetic Regimen
 - b. If no, 2.2) Describe how animals will be restrained during imaging: What type of restraint will be used for the imaging session?
- 3) Please provide a description of the imaging procedure: Describe the imaging session (i.e. the type of imaging, length of time, etc.)
- 4) Describe monitoring during imaging and recovery from anesthesia: Describe how the animal will be monitored before returning to the home cage or rack.

Immunization/Use of Adjuvants

- 1) Will the animals be immunized to produce antibodies? If animals are being immunized solely for the purpose of antibody production (i.e. antibody harvest for other uses), mark “Yes” and explain why commercial antibodies cannot be used in section 1.1. If immunizations are not for the purpose of antibody production, mark “No” and continue to section 1.2.
 - 1.1) Explain why a commercial antibody cannot be used: Enter justification for using non-commercial antibodies here.
 - 1.2) Indicate why the immunization is being performed.
- 2) Are you using adjuvants?
 - 2.1) Describe the use of Adjuvants: Complete the substance table for adjuvants if they are being used.
 - 2.2) Are you using Complete Freund's Adjuvant (CFA)? Mark “Yes” if you are using CFA.
 - 2.2.a) Justification for Complete Freund's Adjuvant (CFA): Provide justification for the use of CFA/
- 3) Are you performing footpad injections? Mark “Yes” if you will be performing footpad injections.
 - 3.1) Justification for the Use of Footpad Injections: Provide justification for the use of footpad injections here.

Induction of Functional Deficits, Other than those for Genetically Modified Animals

- 1) Description of the procedure in detail: Describe how the animal is induced with the functional deficit.
- 2) Describe the deficits expected from the procedure: Describe the deficit that will be induced.
- 3) What supportive care is required for animals with functional deficits? Describe supportive care provided to animals with functional deficits. If substances are provided

to reduce pain and distress (fluids, analgesics, etc.), include them on the “Additional Substances” page of this procedure.

- 4) Describe how animals will be monitored and frequency of monitoring: Describe frequency of monitoring and what signs and symptoms are monitored.
- 5) What is the duration of survival after the procedure? Describe the duration of survival after the onset of deficits.

Induction of Illness

- 1) Please describe the procedure in detail: Include details of the procedure here.
- 2) What potential impairment can be expected from the procedure? What impairments are expected as a result of the induction of illness?
- 3) Describe how animals will be monitored and frequency of monitoring: Include specific monitoring parameters here, including endpoint criteria for early removal from the study.
- 4) What supportive care is required for animals after illness is induced? What can be done, if anything, to alleviate pain and distress as a result of this procedure? List all supportive care measures here, including fluids and nutritional support. Substance entries (such as Clear H₂O, DietGel, or warmed fluids for SQ injection) can be listed on the “Additional Substances” page.
- 5) What is the duration of survival after the procedure? Indicate the duration of survival after illness is induced.
- 6) What substances/agents will be used to induce the illness? Add substances that are used to induce the illness here.

Irradiation Exposure

- 1) What is the frequency that an individual animal will undergo the irradiation procedure? Describe how often and how many times the animal(s) will be irradiated.
- 2) What is the dose of irradiation to be received and for how long will the animal be exposed to this dose? What is the dose and duration of the irradiation exposure?
- 3) Will the whole body be irradiated or a specific region of the body? Describe what areas of the body will be irradiated.
- 4) If animal will be anesthetized, select an anesthetic regimen: If animals will be anesthetized for the irradiation, select the anesthetic regimen procedure used.
- 5) Describe potential adverse consequences and anticipated timeline of symptoms: What are potential adverse effects and timeline for onset of symptoms?
- 6) Describe supportive care initiatives: What supportive care is provided? If fluids/analgesics are administered, include them on the “Additional Substances” page of this procedure. If antibiotics are administered in the drinking water to irradiated animals, a separate procedure (Manipulation of diet, feed or water restriction, environmental changes, or special caging) is required.
- 7) Define criteria for early removal from study if prior to the anticipated experimental endpoint: Clearly define criteria for early removal from the study.

Manipulation of Diet, feed or water restriction, environmental changes, or special caging

This procedure must be used for any non-standard husbandry conditions. Refer to CCM SOPs for information on standard husbandry.

- 1) Does this procedure involve manipulation of diet and/or other environmental changes? Check ALL that apply: Check a box for each condition that applies to the procedure. Do not combine multiple procedures. For example if animals are on an altered light cycle and feed restricted at the same time, check both boxes.

Food Restriction: Used when feed is withheld, reduced, or fed on a specific schedule different than CCM SOPs specify.

- 1) Provide justification for feed restriction: Why is feed being restricted?
- 2) Describe the feed restriction including frequency and duration: Include duration of the restriction and a specific description of how the restriction will be performed.
- 3) Describe potential adverse consequences for the animal: Describe any health-related consequences for the animals due to this procedure.
- 4) Describe how the animal's body condition will be monitored and frequency of monitoring: Include how often the animals will be monitored and what parameters are used to monitor body condition (e.g. Body Condition Scoring).

Water Restriction: Used when water is withheld, reduced, or given on a specific schedule.

- 1) Provide justification for fluid restriction: Why are fluids being restricted?
- 2) Describe the fluid restriction including frequency and duration: Include duration of the restriction and a specific description of how the restriction will be performed.
- 3) Describe potential adverse consequences for the animal: Describe any health-related consequences for the animals due to this procedure.
- 4) Describe how the animal's hydration status will be monitored and frequency of monitoring: Include how often the animals will be monitored and what parameters are used to hydration status.

Special diets or drinking water: Used when any substance (e.g. antibiotics, tamoxifen, high fat diet) are administered in the feed or drinking water.

- 1) Describe the use of special diets or drinking water including frequency, duration, dosage or concentration given: Include duration of the restriction and a specific description of how the restriction will be performed. Any drugs administered or special diets should be added as substances on the "Additional Substances" page of this procedure. For special diets, be as specific as possible within the substance and include the source of the diet, the manufacturer, and the stock number if available.
- 2) Describe potential adverse consequences for the animal: Describe any health-related consequences for the animals due to this procedure.
- 3) Describe how animals will be monitored and frequency of monitoring: Include how often the animals will be monitored and what specific parameters are used for monitoring.

Temperature Changes: Used for housing or experimentation at any temperature other than what is specified in CCM SOPs or *The Guide for the Care and Use of Laboratory Animals*.

- 1) Describe the use of temperature changes including frequency and duration: Describe how often the temperature will be changed and the duration of each change.
- 2) Describe potential adverse consequences for the animal: Describe any health-related consequences for the animals due to this procedure.
- 3) Describe how animals will be monitored and frequency of monitoring: Include how often the animals will be monitored and what specific parameters are used for monitoring.

Changes in the light cycle: Used for non-standard (12:12 or 14:10) or reverse light cycles.

- 1) Describe potential adverse consequences for the animal: Describe any health-related consequences for the animals due to this procedure.
- 2) Describe the use of light cycle changes including frequency and duration: Describe how the light cycle will be changed, including the frequency of changes and duration of each change.
- 3) Describe how animals will be monitored and frequency of monitoring: Include how often the animals will be monitored and what specific parameters are used for monitoring.

Special caging: Used for non-standard caging (e.g., metabolic cages, environmental chambers, sleep deprivation chambers).

- 1) Describe the use of special caging including frequency and duration:
- 2) Describe potential adverse consequences for the animal: Describe any health-related consequences for the animals due to this procedure.
- 3) Describe how animals will be monitored and frequency of monitoring: Include how often the animals will be monitored and what specific parameters are used for monitoring.

Other (please specify): Used when a non-standard husbandry condition other than listed above is utilized.

- 1) Describe the procedure: What non-standard husbandry condition will be utilized in this procedure?
- 2) Describe potential adverse consequences the animal: Describe any health-related consequences for the animals due to this procedure.
- 3) Describe how animals will be monitored and frequency of monitoring: Include how often the animals will be monitored and what specific parameters are used for monitoring.

Non-surgical collection of body fluids (blood, urine, etc.)

- 1) Will the collection be in-life or after euthanasia? Select In-Life (If blood is collected after a secondary method of euthanasia, no procedure is needed in the protocol.)
- 2) What body fluid is to be collected? Select Blood, Urine, or Other

2.1) Describe the other fluids being collected: If Other, specify the fluid.

Blood

- 1) Blood Collection Locations: Indicate the location(s) from which blood is collected.
- 2) What type of restraint will be used? Specify how animals are restrained (e.g. TBD).
- 3) Chemical restraint Regimen(s) If anesthetics are used, select the appropriate anesthetic regimen procedure. If no procedures appear for selection, you must create a new procedure classified as an “Anesthetic Regimen” procedure-type.
- 4) Specify volume of blood collected: Specify volume per collection.
- 5) Specify frequency of blood collection using this technique: Indicate how often blood will be collected.
- 6) Describe bleeding technique: Describe the technique used to collect blood (e.g. needle size, capillary tube, etc.)
- 7) Describe how hemostasis will be achieved: How will homeostasis be achieved?

Urine

- 1) Describe what technique will be used: Select “By hand.” If urine is collected in a metabolism cage or other special housing, describe urine collection procedure using the “Manipulation of Diet, feed or water restriction, environmental changes, or special caging” procedure type.
- 2) Frequency of Urine Collection: Specify the frequency of collection.

Other

Use only when a procedure cannot be appropriately classified under any other procedure type (such as a Monitoring and Supportive Care procedure). Include a detailed description of the procedure in the text box and add any substances used during the procedure on the “Additional Substances” screen.

Painful stimuli without anesthesia

Use for procedures that induce pain or distress from which the animal cannot escape (e.g. loud noises, thermal seizure induction, repeated shocks, etc.)

- 1) Description of the procedure in detail: Describe the procedure in detail.
- 2) Provide scientific justification why anesthesia cannot be used: Why can the animal not be anesthetized for this procedure?
- 3) How will pain or distress be relieved? Describe the methods used to relieve pain and distress; be specific.
- 4) Alleviation Methods: Add any substances to the table that would be used to relieve pain and distress (e.g. analgesics, fluids, DietGel, etc.).
- 5) What potential impairments can be expected from the procedure? Why potential impairments will this procedure cause?

- 6) What is the duration of survival after the procedure? Endpoints for this procedure and early termination should be clearly defined.

Prolonged Physical Restraint

Use for restraint for the purpose of inducing stress or when restraint-adapted animals are restrained for prolonged periods of time (e.g. chair trained non-human primates, tethered animals, restraint stress, etc.). This procedure is not for routine restraint for other procedures (e.g. blood collection, tail biopsy, etc.). If substances are administered during the restraint procedure, add them on the “Additional Substances” table in this procedure.

- 1) Describe the method of restraint and justify why restraint is required: How will the animal be restrained and why is restraint required?
- 2) Describe how animals are acclimated to restraint: How are animals acclimated to restraint (if they are acclimated)?
- 3) Describe procedures performed while animals are restrained: What procedures will be performed while the animal is restrained?
- 4) Describe duration and frequency of restraint: Be specific as to duration and frequency of restraint.
- 5) Describe how animals are monitored during the restraint period: How are animals monitored during the restraint event? Include vital signs monitored, if applicable.

Surgery: Non-Survival

Use for surgical procedures (an incision is made) from which the animal will not recover and be euthanized.

- 1) Duration of the procedure: How long does the procedure take?
- 2) Select Anesthetic Regimen(s): Select the appropriate anesthetic regimen procedure. If no procedures appear for selection, you must create a new procedure classified as an “Anesthetic Regimen” procedure-type. You can include more than one anesthetic regimen procedure in this field if you have two alternate procedures you would like to use. Mention the use of each in the text box below.
- 3) Vital signs monitored and frequency of monitoring: Indicate what vital signs will be monitored while the animal is under anesthesia and the frequency in which vitals will be recorded.
- 4) Are you performing a thoracotomy/perfusion in rodents? Select Yes or No. If “Yes,” it is recommended that you refer to the IACUC Thoracotomy-Perfusion for Rodents AAP in 5.0 below.
- 5) Describe the non-survival surgery: Describe the procedure and include the primary and secondary methods of euthanasia.
- 6) **Method(s) of Euthanasia: Add the primary and secondary method of euthanasia to the table. Include justification for non-AVMA approved methods of euthanasia.**

Surgery: Survival

- 1) Surgery Type: Select Major or Minor.
Major penetrates and exposes a body cavity or produces substantial impairment of physical or physiological functions (e.g. laparotomy, amputation of a limb, etc.).
Minor does not expose a body cavity and causes little or no physical impairment (e.g. cut-downs, needle aspirations, tail biopsies over 24 days of age, etc.).
 - 2) Reason for Survival Surgery: Why must animals recover from the surgery?
 - 3) Select Anesthetic Regimen(s): Select the appropriate anesthetic regimen procedure. If no procedures appear for selection, you must create a new procedure classified as an "Anesthetic Regimen" procedure-type. You can include more than one anesthetic regimen procedure in this field if you have two or more alternate procedures you would like to use. Mention the use of each in the text box below.
 - 4) Vital signs monitored and frequency of recording: At a minimum, vital sign recording should be completed every 15 minutes. Include a description of any procedures required for implementing devices for vital sign monitoring.
 - 5) Description of Pre-surgical Procedures: Describe methods used to prepare for the surgery (e.g. animal preparation, surgical area preparation, instrument sterilization, etc.)
 - 6) Detailed description of surgical procedures: Describe the surgical procedure, beginning with when the incision is made through the close of the incision. Include suture sizes and types. If a substance is administered during the surgery (excluding anesthetics already described in the anesthetic regimen procedure or analgesics which will be entered on the following page), add those to the "Additional Substances" page of this procedure.
 - 7) Duration of the procedure: How long will the surgery last? Provide a scientific justification for procedures lasting more than 6 hours from intubation to extubation.
 - 8) Do you anticipate any repair surgeries? Do you anticipate having to perform an additional surgery to repair any part of the original surgery? Select Yes or No.
 - 8.1) Repair Surgery Description: If Yes, describe the repair surgery.
 - 9) Will a paralytic agent be used? Will a paralytic agent be used during the surgery? Select Yes or No. If Yes, add the paralytic to the "Additional Substances" table of this procedure.
 - 9.1) Describe Paralytic Agent and Monitoring: If Yes, describe why the paralytic will be used and how the depth of anesthesia will be monitored during paralysis (e.g. EKG, BP, etc.).
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- 1) Plan for post-operative care and monitoring: Include all aspects of post-operative care, time points or intervals for monitoring. Begin by describing recovery from anesthesia, then post-surgical monitoring time points and when sutures are removed.
 - 2) Expected Impairments or Complications: Describe any impairment that can be expected from the surgery (i.e., lasting functional deficits), any post-operative complications that may develop, and your plans to handle them
 - 3) Chronically Implanted Devices: Describe the care of chronically implanted devices.
 - 4) Duration of Survival: When will the end point be for the animals subjected to this surgery?

- 5) Pain management protocol: What criteria will be used to assess post-operative pain, who will monitor and treat the animals, and what analgesic (including dose, route & interval) will be applied? You should administer one dose of analgesia during the induction of anesthesia, if possible, and then maintain analgesia until 48 hours after a major surgery. At minimum, a one-time dose of analgesic during the 24 hours after minor procedures is needed; if this will not be done, explain why.
- 6) Pain Management Protocol Substances: Include the analgesics mentioned in 5.0 in this substance table.

Tail Biopsy

- 1) Age of Mice being used: Select whether mice will be under or over 24 days of age. If they will be over 24 days of age, this is considered a Surgery: Survival (Minor) procedure and should be entered as such.
- 2) Describe the biopsy procedure: Describe the biopsy. It is recommended to use the AAPs listed on the IACUC website for tail biopsy procedures. If an AAP is used, enter the biopsy as an AAP procedure type.
- 3) Methods of Identification: Select a method of identification if mice are identified at the time of tail biopsy.
 - 3.1) Justification for the use of toe clipping: Provide a scientific justification for toe clipping. Refer to the IACUC Policy on Toe-Clipping of Rodents.

Tumor Induction and Implantation

Use this procedure for tumor induction/implantation procedures that are not done via a surgery. If the induction/implantation procedure requires surgery, you must classify the procedure as a Surgery: Survival procedure type. Afterwards, create a Tumor Induction and Implantation procedure type to describe the monitoring and supportive care while the tumors develop.

- 1) Description of the procedure in detail: Describe how tumors are induced or implanted for non-surgical tumor development procedures. If the tumor was implanted via a surgery, you should refer to that procedure here. If a substance is used to induce tumor development (and not previously described in a surgery), add it to the "Additional Substances" page of this procedure.
- 2) Describe how animals will be monitored and frequency of monitoring: Describe what signs you are observing in the animals and how often they will be monitored. It is preferable to refer to the IACUC Medical Records for Rodents Policy and the CCM Investigator Rodent Health Record SOP (CCM Pink Card). If fluids, DietGel, or other substances are used for supportive care, add them to the "Additional Substances" page of this procedure.
- 3) What is the duration of survival after the procedure? How long will the animals survive? Include endpoints and criteria for euthanasia.