CM SOP #209 – Rodent Necropsy and Post-mortem Examination

Original release date: 01/09/2017 Version: 5 Date last revised: 03/09/2026

I. Purpose & Scope

This SOP establishes standardized procedures for the necropsy examination of rodents (mice and rats) within Comparative Medicine facilities.

Rodent necropsies are performed to:

- investigate clinical illness, morbidity, or mortality
- support diagnostic evaluation
- collect tissues for research or histopathology
- assess colony health status
- document findings related to animal welfare or protocol compliance

This SOP applies to all necropsies performed by Comparative Medicine personnel on rodents housed within FAU animal facilities.

Necropsies must be conducted in designated necropsy areas using appropriate biosafety practices to ensure:

- accurate diagnostic evaluation
- preservation of tissue integrity
- protection of personnel
- prevention of contamination

II. Roles & Responsibilities

Comparative Medicine Staff

Comparative Medicine staff performing necropsies must:

- Perform necropsies in accordance with this SOP.
- Ensure proper identification of animals prior to necropsy.
- Collect, label, and preserve tissues appropriately.
- Maintain accurate and complete necropsy records.
- Notify veterinary staff of significant findings when appropriate.

Research Staff, Students, Visitors

Research personnel may participate in necropsy procedures when approved by Comparative Medicine and when properly trained.
Research staff must:

- Follow this SOP and all biosafety procedures.
- Ensure necropsy procedures are consistent with the approved IACUC protocol.
- Maintain appropriate study records when necropsies are conducted for research purposes.

CM Assistant and Associate Directors

Facility Managers and supervisory staff are responsible for:

- Ensuring personnel performing necropsies are appropriately trained and competent.
- Maintaining necropsy facilities and equipment.
- Ensuring necessary supplies and diagnostic resources are available.
- Monitoring compliance with this SOP.

CM Director and AV

The Director and Attending Veterinarian are responsible for:

- Oversight of the necropsy program.
- Determining the diagnostic scope of necropsy examinations.
- Providing training and technical guidance to staff.
- Ensuring necropsy procedures align with regulatory requirements and veterinary best practices.

III. General Notes & Definitions

- **Necropsy**: The systematic post-mortem examination of an animal to evaluate gross abnormalities and collect tissues for diagnostic or research purposes.
- **Diagnostic Necropsy**: A necropsy performed to determine the cause of illness or death.
- **Gross Lesion**: Any visible abnormality observed during necropsy.
- **Fixation**: The preservation of tissues using chemical fixatives to prevent degradation prior to histologic evaluation.
- **Timing of necropsy**
  - Necropsies should be performed as soon as possible following euthanasia or death to minimize post-mortem artifacts.
  - If immediate necropsy cannot be performed, carcasses must be properly identified and refrigerated in accordance with institutional carcass handling procedures.
  - Freezing carcasses should generally be avoided unless specifically required for diagnostic purposes.
- Diagnostic Tissue Collection
  Unless otherwise directed by a veterinarian or dictated by study requirements, the following tissues should be considered for routine collection during diagnostic necropsies:
- Head
  - Brain
  - Harderian glands
  - Salivary glands
- Thoracic cavity
  - Lungs
  - Heart
  - Thymus
- Abdominal cavity
  - Liver
  - Spleen
  - Kidneys
  - Adrenal glands
  - Stomach

  - Small intestine
  - Large intestine / cecum
  - Mesenteric lymph nodes
  - Pancreas
- Genitourinary system
  - Urinary bladder
  - Testes and epididymides (males)
  - Ovaries and uterus (females)
- Additional tissues should be collected from any abnormal or suspect lesions.

IV. Materials & Equipment

- Necropsy table (downdraft or backdraft table when available)
- Biosafety cabinet (for infectious or hazardous cases)
- Dissection instruments
- Tissue cassettes
- Sample containers
- 10% neutral buffered formalin
- Sterile instruments for microbiological sampling
- Alcohol or disinfectant
- Absorbent pads
- Digital camera (optional for lesion documentation)
- Necropsy forms and labels

V. Procedure

A. Preparation

Whenever possible, necropsies should be planned in advance.

1. Review the following prior to necropsy:
   a) animal identification
   b) clinical history
   c) study protocol (if applicable)
   d) colony health status
   e) prior diagnostic findings
2. Clean and prepare the necropsy area before beginning the procedure.
3. Perform a systematic external evaluation.
4. Record:
   a) animal identification
   b) species and strain (if known)
   c) sex
   d) age (if known)
   e) body weight
5. Examine the animal for:
   a) body condition
   b) hair coat abnormalities
   c) skin lesions or wounds
6. external masses
   a) skeletal abnormalities
   b) evidence of trauma
   c) abnormalities of the eyes, nose, mouth, anus, or genital openings

d) Palpate the body for internal masses or organ enlargement.

7. Place the animal in dorsal recumbency.
8. Moisten the ventral fur with alcohol to reduce hair contamination.
9. Make a ventral midline skin incision extending from the chin to the perineum.
10. Reflect the skin laterally and evaluate:
    a) subcutaneous tissues
    b) lymph nodes
    c) mammary tissue
    d) salivary glands
11. Open the abdominal cavity by incising the linea alba.
12. Extend the incision cranially, taking care not to penetrate any of the underlying organs or tissues, to open the thoracic cavity.
13. Evaluate organs in situ prior to removal.
    a) Assess for:
        (i) abnormal fluid accumulation
        (ii) hemorrhage
        (iii) masses
        (iv) organ enlargement
        (v) adhesions
    b) Visceral organs should be examined for:
        (i) size
        (ii) shape
        (iii) color
        (iv) texture
        (v) consistency
14. Collect tissues as appropriate for:
    a) Histopathology: place in 10% neutral buffered formalin at a minimum ratio of 1 part tissue to 20 parts fixative.
    b) Microbiology: must be collected using sterile instruments and aseptic technique.
    c) Cytology
    d) Molecular diagnostics
    e) Research purposes
15. Document necropsy findings using *CM Form 043: Rodent Necropsy Evaluation Worksheet*.

VI. Health & Safety

- Personnel performing necropsies must follow institutional biosafety and occupational health procedures.
- Minimum PPE includes:
    - disposable gloves
    - disposable gown or lab coat
- Additional PPE may be required for animals exposed to infectious agents, hazardous chemicals, or carcinogens, including:
    - double gloves
    - masks or respirators
    - eye protection
- Necropsies involving infectious materials or hazardous agents must be performed in appropriate containment such as a biosafety cabinet or downdraft necropsy table.

- Hands must be washed after completing necropsy procedures.
- All sharps injuries, animal bites, or occupational exposures must be reported according to institutional occupational health policies.

VII. References & Attachments

- *Guide for the Care and Use of Laboratory Animals*. National Research Council
- Public Health Service Policy on Humane Care and Use of Laboratory Animals
- Biosafety in Microbiological and Biomedical Laboratories (BMBL)
- Related SOPs:
  - SOP 202 – Rodent Health Monitoring and Reporting
  - SOP 105 – Carcass Storage and Disposal
- CM Form 043 – Rodent Necropsy Evaluation Worksheet

VIII. Revision History

Revision Date	Revision Number	Summary of Changes
06/11/2020	2	Added NBF for collection and amount. Clarification of necropsy method.
05/09/2023	3	Shifted job responsibilities from animal care technicians to veterinary technician and associate. Remove responsibilities of FM.
04/01/2026	4	Updated format, refined language, made ADA compliant

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