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BIOLOGICAL RESOURCES: LD50 Study Guidelines

Biological Resources is committed to minimizing pain and distress in animals under its care. Since animals cannot verbally communicate their condition, it is crucial that animal care technicians and research personnel conduct consistent and careful observations. For studies involving **LD50 (lethal dose 50)** testing, collaboration with investigators is essential to ensure that **humane endpoints** are implemented effectively.

Investigator Responsibilities in LD50 Studies

To uphold the highest standards of animal welfare, investigators conducting LD50 studies must comply with the following requirements:

1. Identification of Study Animals

- All cages containing animals enrolled in LD50 studies **must be clearly labeled** by the investigator.
- If **blinding** is necessary, a key to the study assignments must be provided to a **Biological Resources supervisor** or **licensed veterinary technician (LVT)** *before* the study begins.

2. Notification of Dosing Events

- Investigators must **inform Biological Resources personnel at the time of inoculation** with any experimental compounds or infectious agents.

3. Dosing Strategy

- Dosing should be conducted using an **upward titration approach** whenever possible:
  - Begin with the **lowest projected LD25–LD50 dose**, based on previous studies (either in similar rodent species or using alternative administration routes).
  - Monitor a **small initial cohort** for signs of morbidity or mortality before increasing the dose.
- **Avoid dosing large groups** of animals across the full projected dose range.

4. Post-Procedure Monitoring and Documentation

- A **post-procedure care card** must be completed for each cage, including:
  - Date and time of the initial dose
  - Date(s) and time(s) of any subsequent doses (if applicable)
  - Contact information for the **Principal Investigator (PI)** or designated protocol associate
  - Clinical observations of each animal

- The PI or designated associate is responsible for monitoring animals at the **frequency specified in the IACUC-approved protocol**.
- **Independent observations** will also be conducted **twice daily**, including weekends and holidays, by the **Animal Health Care Technologist** or their designee.

5. Compliance with Humane Endpoints

- All research personnel must adhere to the **humane endpoints** defined in the **approved IACUC protocol** without exception.

6. Special-Care Per Diem Rate

- Studies requiring additional monitoring or husbandry services will incur a **special-care per diem rate**, consistent with standard billing policies.

Further Reading and Resources

For more information on ethical considerations, humane endpoints, and regulatory guidance related to LD50 studies, please consult the following resources:

- **ILAR Journal: Humane Endpoints Issue**
  https://academic.oup.com/ilarjournal/issue/41/2?browseBy=volume
- **Interagency Research Animal Committee (IRAC) Guidelines on LD50 Testing**
  https://academic.oup.com/ilarjournal/article/35/3-4/56/681552