UCI Environmental Health & Safety

Safety In Research and Vivarium Environments (SIRVE) Program

Responsible Administrator: Vivarium Safety Officer
Revised: November 2023

Summary: The purpose of the Safety In Research and Vivarium Environments (SIRVE) program is to minimize injuries and exposures due to the use of hazardous materials and operations related to animal research.

1. Program Description

The purpose of the Safety In Research and Vivarium Environments (SIRVE) program is to minimize injuries and exposures due to the use of hazardous materials and operations related to animal research. This is accomplished by:

- EHS review of all Institutional Animal Care and Use Committee (IACUC) protocol submissions.
- Performing a risk assessment of the agents and procedures identified as potentially hazardous in each submitted protocol.
- Initiating safety considerations meetings as needed with University Lab Animal Resources (ULAR) representatives and researchers.
- Providing hazard communication to all parties involved.
- Providing support for ULAR and research staff in developing and complying with effective risk management strategies.

2. Scope

This document applies to all UC Irvine animal researchers and staff support personnel where potential exposure to hazardous agents used in animal research may exist.

3. Definitions

- **Vivarium:** A facility for housing research animals.

- **Standard Operating Procedure (SOP):** A document consisting of step-by-step information on how to execute a task. This document should include administrative controls, engineering controls, and personal protective equipment that is required to perform the task safely.

- **Safety Considerations Meeting**: A meeting intended to communicate risk and mediate the distribution of responsibilities for risk management for all stakeholders involved.

- **Vivarium Safety Officer:** Environmental Health and Safety personnel responsible for providing guidance and assistance in all health and safety matters involving animal research.

- **University Laboratory Animal Resources (ULAR):** ULAR is under the auspice of The Office of Research. The ULAR department is responsible for the care and welfare of all research animals on campus. These responsibilities include but are not limited to housing, husbandry, veterinary care and oversight of all vivaria spaces.

- **Institutional Animal Care and Use Committee (IACUC):** Is composed of scientists, non-scientists, veterinarians, and community members – all appointed by the Vice Chancellor for Research. This committee oversees all aspects of the Animal Care and Use program under UCI.

4. Responsibilities

- Vivarium Safety Officer is responsible for:
  - Reviewing IACUC protocols and providing a risk assessment of proposed procedures
  - Initiating and facilitating safety consideration meeting as needed
  - Providing hazard communication, training, and consultation
  - Developing EHS SOPs
  - Performing periodic vivarium safety inspections

- ULAR Animal Technicians are responsible for:
  - Performing animal room inspections
  - Providing food, water, and cage cleaning for the research animals
  - Maintaining vivarium facilities
  - Following established SOPs

- Faculty/Principal Investigators (PI) are responsible for:
  - Designing research projects
  - Submitting protocols and SOP's
  - Directing supervision of research projects and research personnel
  - Complying with federal, state, and other regulations as applicable to the research project.

5. Program Components

- EHS IACUC Protocol Review

  All proposed IACUC protocols will be reviewed by the EHS Vivarium Safety Officer during the pre-review period prior to IACUC meetings. Each protocol will receive a preliminary hazard risk identification and assessment with respect to the procedure(s) involved and agents used. Identification of a hazardous substance will rely on consultation of a number of sources including safety data sheets, Cal OSHA, NIH guidelines and published standard operating procedures from

reputable sources. When further expertise is required, review by the EHS Subject Matter Expert will be requested.

Once the risk identification and assessment are complete, the Vivarium Safety Officer will submit all comments to the IACUC.

- Risk Assessment

  The risk assessment performed by the Vivarium Safety Officer is a three-pronged approach: evaluation of the agent, personnel, and the research environment. With respect to the agent, risk assessments will include review of the safety data sheet, the dose administered, as well as exposure risks based on the procedures (e.g., preparation, administration).

- Safety Considerations Communication

  If an occupational health hazard is identified during the risk assessment, a safety considerations communication can be initiated to meet the needs of effective hazard communication. There are two types of communication: individual and joint:

  - Individual Communication
    Communication by the Vivarium Safety Officer and responsible research personnel. The subject of this communication will include widely used agents and procedures that have established risk management practices. The Vivarium Safety Officer may provide a standardized SOP and a discussion will occur regarding the health risk of the agent and risk management strategies.

  - Joint Communication
    Communication from the Vivarium Safety Officer to the responsible research personnel, and ULAR are reserved for procedures and agents that require high risk. These typically involve high hazard therapeutics (e.g. MPTP, select agents, BSL2+) that require open communication between all stakeholders and agreement on agent specific animal handling procedures. An in-person meeting may be required and may include EHS Subject Matter experts as appropriate. During the meeting, procedure rooms may be assessed for appropriate engineering controls such as negative room pressure, fume hood, biosafety cabinet as needed. After the discussion, an SOP is developed by the PI and signed by all attendees.

    Specific elements of the SOP should include:
    - Specific exposure hazards and health hazards
    - Safety issues to consider
    - Preparation safety guidelines
    - Administration of agent to animals
    - Animal handling and animal waste pathways
    - Agent waste pathways
    - Emergency instructions in case of exposure/spill

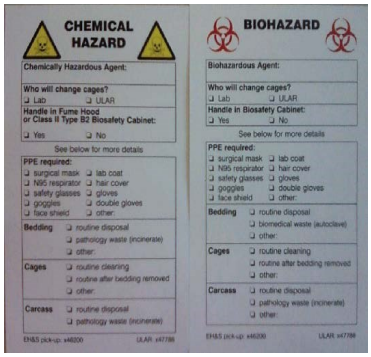
- Vivarium Hazard Communication

If an agent is found to be hazardous and requires special attention to bedding and waste disposal a vivarium hazard communication door sign will be generated. The hazard communication door sign is to be placed outside of the animal holding room. Information on the door sign includes:

- Specific agent name
- Nature of the hazardous agent (e.g., biological or chemical)
- Potential route of entry
- Potential health effects
- Specific PPE required for room entry, animal handling and cage changing
- Cage cleaning and bedding disposal guidelines

Signage will also be present at cage level by the use of hazard notification cards provided by ULAR. The researcher will be required to fill in the hazard notification card and place it standing up behind the cage card. Information on these cards include:

- Specific agent name
- Nature of the hazardous agent (e.g., biological or chemical)
- Handling requirements (e.g., fume hood or biosafety cabinets)
- PPE requirements
- Cage cleaning and bedding disposal guidelines
- Carcass disposal guidelines



6. Reporting Requirements

All generated SOP's and vivarium hazard communication door signs must be uploaded as an attachment to the approved IACUC protocol. If non-compliance with approved safe handling and use procedures of a hazardous agent is found, the Vivarium Safety Officer will contact the researcher to discuss the safety procedures and hazard communication requirements. If non-compliance continues, the IACUC committee will be notified.

7. References

- UCI Environmental Health and Safety www.ehs.uci.edu
- UCI IACUC https://research.uci.edu/animal-care-and-use/
- ULAR https://research.uci.edu/facilities-services/ular/index.html