

UNIVERSITY OF NEVADA LAS VEGAS TOXIN LABORATORY STANDARD OPERATING PROCEDURES (SOPS)

This SOP document should include specific information for the laboratories and procedures being performed. It is meant to give detail in addition to UNLV's adopted* standard Toxin Safety procedures (pages -).

All faculty, staff and students should familiarize themselves with these procedures and sign page prior to starting work in this laboratory. Questions should be directed to the Principle Investigator. A copy of the SOP must be forwarded to the UNLV Biosafety Officer and a copy must be retained in the laboratory's Biosafety Manual.

Principle Investigator:

Toxin Use Room Numbers:

Toxins Being Used: (MSDS attached if available)

Description of Procedure(s):

Hazards: The following materials and/or equipment associated with this procedure may present exposure hazards, health hazards, and/or physical hazards. Identify potential exposures that may occur during sample preparation, and/or experimental manipulations (i.e., use of sharps, use of powdered toxins, aerosol generation during centrifugation, mixing or sonication, etc.):

Administrative Controls: The following administrative controls are in place to avoid exposures (i.e., training, signage, restricted entry, etc.):

Engineering Controls: The following safety equipment must be used when carrying out this procedure. (i.e., chemical fume hood, biological safety cabinet, sealed centrifuge rotors, etc.):

Protective Equipment: The following personal protective equipment must be worn when performing this procedure (type of glove, eye protection, lab coat, etc.):

Additional Special Handling Procedures: Including any transport between labs or buildings (i.e., secondary containment):

Decontamination/Clean- Up Procedures: Specifics on products and procedures used to clean work areas. Include specifics on when these procedures will be performed and timing involved (i.e. contact time):

Waste Disposal Procedures: Include specifics on collection, deactivation and transport for disposal:

Spill Response Procedures: Procedures to follow if a spill occurs:

Injury/Exposure Response Procedures: Steps to be taken in the event of an exposure incident:

Unattended Operations: Portions of the experiment that may run unattended and steps taken to prevent accidental exposures:

Additional Laboratory Specific Safety Procedures:

I have read and understood all portions of this SOP. I agree to contact the Principle Investigator should I have any questions or plan on making any modifications to the procedures detailed here.

NAME	SIGNATURE	DATE

Standard UNLV Toxin Safety Practices and Procedures:

General

The laboratory facilities, equipment, and procedures appropriate for work with toxins of biological origin must reflect the intrinsic level of hazard posed by a particular toxin as well as the potential risks inherent in the operations performed. If both toxins and infectious agents are used, both must be considered when containment equipment is selected and policies and procedures are written. If animals are used, animal safety practices must also be considered.

Standard & Special Practices

Standard & Special BSL-2 and BSL-3 safety practices should be reviewed and incorporated as appropriate into protocols for work with toxins.

Training specific to the toxin(s) used is required and documented for all laboratory personnel working with toxins, before starting work with the toxin and at intervals thereafter.

An inventory control system shall be in place.

Toxins shall be stored in locked storage rooms, cabinets, or freezers when not in use.

Access to areas containing toxins is restricted to those whose work assignments require access.

Preparation of primary containers of toxin stock solutions and manipulations of primary containers of dry forms of toxins must be conducted in a chemical fume hood, a glove box, or a biological safety cabinet or equivalent containment system approved by the safety officer. HEPA and/or charcoal filtration of the exhaust air may be required, depending on the toxin.

The must should verify inward airflow of the hood or biological safety cabinet before initiating work. All work must be done within the operationally effective zone of the hood or biological safety cabinet.

When toxins are in use, the room should be posted to indicate "Toxins in Use Authorized Personnel Only." Any special entry requirements should be posted on the entrance(s) to the room. Only personnel whose presence is required should be permitted in the room while toxins are in use.

All high risk operations should be conducted with two knowledgeable individuals present. Each must be familiar with the applicable procedures, maintain visual contact with the other, and be ready to assist in the event of an accident.

Before containers are removed from the hood, cabinet, or glove box, the exterior of the closed primary container should be decontaminated and placed in a clean secondary container. Toxins should be transported only in leak/spill-proof secondary containers.

Contaminated and potentially contaminated protective clothing and equipment should be decontaminated using methods known to be effective against the toxin before removal from the laboratory for disposal, cleaning or repair. If decontamination is not possible/practical, materials (e.g., used gloves) should be disposed of as toxic waste. Materials contaminated with infectious agents as well as toxins should also be autoclaved or otherwise rendered non-infectious before leaving the laboratory.

The interior of the hood, glove box, or cabinet should be decontaminated periodically, for example, at the end of a series of related experiments. Until decontaminated, the hood, box, or cabinet should be posted to indicate that toxins are in use, and access to the equipment and apparatus restricted to necessary, authorized personnel.

Safety Equipment

The safety equipment guidelines listed under BSL-2 and BSL-3 should be reviewed and incorporated as appropriate into protocols for work with toxins.

1. When using an open-fronted fume hood or biological safety cabinet, protective clothing, including gloves and a disposable long-sleeved body covering (gown, laboratory coat, smock, coverall, or similar garment) should be worn so that hands and arms are completely covered.
2. Eye protection should be worn if an open-fronted containment system is used.
3. Other protective equipment may be required, depending on the characteristics of the toxin and the containment system. For example, use additional respiratory protection if aerosols may be generated and it is not possible to use containment equipment or other engineering controls.
4. When handling dry forms of toxins that are electrostatic:
 - a. Do not wear gloves (such as latex) that help to generate static electricity
 - b. Use glove bag within a hood or biological safety cabinet, a glove box, or a class III biological safety cabinet.
5. When handling toxins that are percutaneous hazards (irritants, necrotic to tissue, or extremely toxic from dermal exposure), select gloves that are known to be impervious to the toxin.
6. Consider both toxin and diluent when selecting gloves and other protective clothing.
7. If infectious agents and toxins are used together in an experimental system, consider both when selecting protective clothing and equipment.

Laboratory Facilities

Laboratory facility recommendations listed under BSL 2 and BSL 3 and OSHA standards should be reviewed and incorporated as appropriate into protocols for work with toxins.

When vacuum lines are used with systems containing toxins, they should be protected with a HEPA filter to prevent entry of toxins into the lines. Sink drains should be similarly protected when water aspirators are used.

* Adopted directly from *Biosafety in Microbiological and Biomedical Laboratories*, 4th Ed. U.S. Department of Health and Human Services, 1999.