Biohazard Containment and Security

University of Tennessee Safety Guide LS-BIO-006

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Purpose

This document provides guidance on expectations of best practices for UTK researchers in maintaining laboratory and biohazard security and containment.

Scope and Applicability

The biological hazard control practices outlined in this document apply to the use, storage, and management of biological agents at UTK, UTIA, and UTMCK GSM.

Definitions and Abbreviations

Definitions

Biosafety level: A set of controls, laboratory practices, and safety equipment for the containment of biological agents. There are four biosafety levels depending on agent infectivity, route of exposure, disease severity, transmissibility, and the nature of the work conducted.

Abbreviations

BMBL: Biosafety in Microbiological and Biomedical Laboratories (current edition)

BSL: Biosafety level

CDC: Centers for Disease Control

DHHS: Department of Health and Human Services

EHS: Environmental Health and Safety

IBC: Institutional Biosafety Committee

SOP: Standard Operating Procedure

USDA: United States Department of Agriculture

UTK: University of Tennessee main campus

UTIA: University of Tennessee Institute of Agriculture

UTMCK GSM: University of Tennessee Medical Center at Knoxville Graduate School of Medicine

Maintaining A Secure Lab Environment

The *NIH Guidelines*, the BMBL, and institutional policy require recombinant and potentially infectious and/or biologically hazardous (e.g., acute biological toxins) agents to be secured when not in use. Beyond this

requirement, maintaining a secure lab protects the environment, work-related materials, and private property. Entry to any laboratory is granted at the sole discretion of the laboratory principal investigator, but the following standards should be followed:

- Lock the laboratory when not in use. Unlocked and empty facilities are easy targets for theft. Secure the lab if it is vacant. (Note: labs under the purview of EHS-Radiation Safety require the doors be locked anytime a lab is unoccupied.)
- Lock entry doors at the end of the shift.
- Contractors, service personnel, and visitors should be made aware of risks and any entry requirements before starting work in the lab.
- Individuals who do not routinely work in the lab are encouraged to wear identification and make their presence known.
- Children under 18 are prohibited from entering BSL-2 (or higher) laboratories at the University unless the risk(s) have been evaluated by EHS Biosafety and/or the IBC.
- Do not provide access codes or keys to individuals not authorized to be in the lab.
- Be aware of your surroundings and do not allow strangers to wander through the lab. If you notice someone who seems out of place, make other personnel aware and offer to direct them to their desired person or location. **This does not mean to put yourself at risk. If you are uncomfortable with the situation or are alone, please do not hesitate to seek help from others in the lab or surrounding labs, or the UT Police Department at 865-974-3111.**
- Report any security breaches to the next higher level of authority (supervisor, department head) and UT Police within 30 minutes of becoming aware of the breach.

Security Measures for Biohazards, Including Select Agents

The Biosafety Officer is the primary contact for required security measures under this section and can be contacted at 865-974-5084. Security measures associated with biohazards include:

- Infectious agents categorized as Risk Group 2 (or higher) must be secured. Security measures include lockable storage devices, locked laboratory doors (when personnel are not present), card/code-restricted areas/zones, or combination thereof. Stringency may vary based on the agents, regulatory requirements, or other special considerations identified by safety and security risk assessments.
- Storage devices located in unlocked/unrestricted shared areas shall be locked and appropriately labeled with biohazard signage and contact information.
- Biological materials under regulatory permit (e.g., USDA, CDC, etc.) must be secured according to the specified permit provisions.
- Department of Health and Human Services (DHHS)/United States Department of Agriculture (USDA) select toxins under the *de minimis* threshold quantity must be secured in a locked container (refrigerator, freezer, cabinet, etc.), which is maintained in a secured laboratory or storage area. An inventory must be maintained by laboratory personnel. SOPs for toxin amounts, types of use, and storage/security measures, must be approved by the Institutional Biosafety Committee (IBC).
- DHHS/USDA select agents and toxins (exceeding *de minimis* threshold quantity) are subject to a comprehensive plan inclusive of equipment, laboratory, building, and campus security measures. This plan will be developed by EHS Biosafety in collaboration with campus security authorities. The plan must be approved by the IBC and federal authorities as applicable.

- Wastes containing biological hazards from any of the above must remain within the control of the laboratory or approved personnel until it has been inactivated and/or disposed in accordance with biological waste disposal requirements approved by the IBC.

Containment Measures for Biohazards

Ensure biohazards are stored properly by:

- Maintaining biological agents, cultures, blood, body fluids, and/or necropsy (pathological) specimens in primary tubes, flasks, petri dishes or other suitable containers that are in good repair, durable, and closed/sealed appropriately.
- Enclosing primary containers in secondary storage boxes (or similar) that will prevent leaks in the event of containment failure.
- Providing a means of clear and simple identification, including sample names/descriptions, owner/curator, and date.
- Maintaining storage equipment to ensure preservation, integrity, and security of samples. Equipment maintenance schedules and a means of call-out failure notification are strongly encouraged for long-term storage devices (e.g., -80 C freezers, cold rooms, freezer rooms, etc.).
- Establishing and maintaining laboratory records of stored materials.
- Sterilizing/decontaminating and appropriately disposing of old or unwanted research materials at the end of a project or during laboratory check-out procedures.

Control and Report Mechanical Vectors: Insect and Rodent Control

To control the inadvertent spread of infectious agents and other biological contaminants beyond the lab, it is important to establish and follow a pest management program, which includes but may not be limited to the following measures:

- Laboratory windows (if present) should not be open to the exterior. If a lab does have windows that open to the exterior, they must be fitted with fly screens.
- Do not consume or store food in the laboratory. All food should be contained and inaccessible to pests.
- Animals and plants not associated with the work being performed are not permitted in the laboratory.
- If pests are observed in/near the laboratory, contact EHS Biosafety or the Facilities Services pest control group (865-946-7777) to have the area evaluated.

References

SA0100 – Safety and Environmental Health Program

SA0700 – Safety and Environmental Health Responsibilities

LS-001 Laboratory Health and Safety Program

Select Agent Regulations (7 CFR Part 331; 9 CFR Part 121; 42 CFR Part 73)

Biosafety in Microbiological and Biomedical Laboratories (BMBL)

NIH Guidelines

Appendices

None.

Disclaimer

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