

SECURITY ADVICE FOR BIOSAFETY LABORATORIES

Laboratory security is an integral part of an effective biosafety program. Bio-security goals include the following:

- Prevent loss or contamination of valuable teaching and research materials and/or related sensitive information;
- Prevent release of potentially harmful organisms into the environment;
- Prevent accidental exposure to faculty, staff, students, and visitors; and
- Reduce the risk of theft of biohazardous material for the purposes of hurting or threatening others.

Scope

Security policies, practices, and procedures in this SOP apply to UNL laboratories engaged in the following types of projects:

- Projects involving recombinant or synthetic nucleic acids conducted at Biosafety Level 2 and Biosafety Level 3 containment
- Projects involving Risk Group 2 (RG2) or Risk Group 3 (RG3) infectious agents and toxins

Note: Where applicable and possible, security measures should also be followed during analogous field research projects.

General Security Measures

Employees, as day-to-day occupants of laboratories, provide the first line of laboratory security.

- Laboratory access should be restricted to those with a need; the PI is responsible to determine who will be granted access rights.
- Keep laboratory doors closed. This protects experiments from contamination and discourages individuals from wandering into the room. Lock the doors when the room is unoccupied.
- Promptly remedy compromised security features, such as broken locks and arrange for alternate security measures until repairs are complete.
- Keep stocks of organisms locked during off hours and when not attended by laboratory personnel. Freezers and refrigerators in corridors are particularly susceptible to access, so they need to be locked at all times.

- Do not leave keys or access cards in open or accessible areas. Do not disclose access codes or loan keys to other personnel. Limit the number of persons with access rights to the minimum required to conduct the work in an efficient manner.
- Ask strangers (someone you do not recognize as a co-worker or support staff person) to exit the room if they are not authorized to be there. Laboratories are off limits to non-authorized persons when research is being conducted at BSL 2 or 3.
 - Strangers should always be able to account for their presence. If you do not feel comfortable with their answer, be prepared to take appropriate action. Your approach should be: a) ask them if they need assistance; b) politely ask them to leave the area; c) ask them to follow you to the department office to seek information (but do not leave the area unsecured while you serve as the escort); d) if necessary, call the UNL Police for assistance. Report such occurrences to the UNL Police Department.
 - Discuss how to handle strangers beforehand so that your response is proper and effective. The UNL Police can provide training and additional information upon request.
- Know the building schedule for locking doors. If strangers are present in the building after it has been secured, call the UNL Police.
- Visually inspect all packages of biohazardous materials arriving at the work area and open them within a biological safety cabinet. If stains are present on the package, the package is unexpected, or the package is damaged, isolate and secure the package, do not open it, and call the UNL Biosafety Officer or EHS. Out-going packages must be prepared in accordance with transport regulations and offered only by personnel who have completed shipping training within the past two years (Designated Shippers).
- Keep an accurate record of RG 2 and 3 stocks and cultures, project materials, growth media, and those equipment items that support project activities. Track and account for any missing organisms or other items. Discuss any discrepancies with the lab supervisor and other lab employees, including future measures that will be taken to prevent loss of these items. Report losses to the UNL Police and the Biosafety Officer/EHS. Promptly treat and discard unnecessary stocks and notify EHS of abandoned stocks of biohazardous materials.
- Research waste items related to RG 2 and 3 organisms must be autoclaved before disposal. Also, ensure that autoclave areas are monitored. If possible, take autoclave bags to the outside waste container early in the day to ensure same-day pickup. Keeping biological support materials out of the waste containers overnight is a way to prevent access to these items.
- When research is completed for the day, ensure that all biological materials have been properly stored and secured. Lock all laboratory doors.

Cybersecurity Measures

In addition to physical security measures, cybersecurity is just as important to guard against research being accessed by unauthorized individuals.

- Ensure computer passwords are strong, containing at least 8 characters, and at least one of the following: uppercase letter, lowercase letter, number, and symbols.
- Do not post computer passwords in the lab or office areas.
- Do not open emails from unknown sources on lab computers.
- Change computer passwords to common lab computers when staff changes occur.

Threat Awareness

The measures described above are good general security measures that are easy and simple things to ensure the lab and lab data are secured. However, sometimes the threat does not come from an obvious source. The following tips are intended to help you identify security threats from unusual sources.

- Insider Threats – there is a higher incidence of security breaches and theft from persons working within a lab/company/institution than from outside individuals. The following are examples of suspicious behavior that should be reported.
 - Sudden changes in work habits/hours
 - Secretiveness
 - Suspected substance abuse
 - Conflicts with coworkers
- Outsider Threats – it is important to be aware of suspicious persons and behaviors in strangers that may indicate a threat to you or your coworkers. The following are examples of suspicious behaviors that should be reported.
 - Asking detailed questions about your place of work
 - Asking detailed questions about your research
 - Lurking outside building entrances
 - Unusual cars parked in parking lot overnight
 - Persons taking pictures outside your place of work.

Any of these suspicious activities should be reported to your supervisor and UNLPD (402-472-2222).

Additional Considerations

Additional security measures may also be appropriate based on research or organism specific considerations. Applicability and appropriateness of additional security measures should be determined by the Principal Investigator using a risk assessment approach. Submission of a complete protocol for consideration by the IBC includes questions related to dual use considerations, which is relevant to bio-security considerations. In addition, the 5th Ed. of the BMBL describes a risk assessment approach that considers the biological agents in possession relative to potential for

misuse and potential consequences; insider and outsider threats, motivation, and opportunity; robustness of existing security measures; and the need for enhanced measures.

BSL 3 Security Measures

Each BSL-3 containment facility must have an individual security plan, and the plan must be based on a security and vulnerability assessment. The plan must be developed with input from the PI, EHS, administrative officials, and UNLPD, at a minimum. When work with select agents is anticipated, the plan must also conform to all applicable regulatory requirements, including periodic drills.

What To Do If Security Is Compromised

If you ever feel that security of your lab or the building you work in has been compromised, contact your supervisor/faculty mentor immediately. Together you should contact UNLPD and they can assist you with putting temporary security measures in place until the security breach is located and fixed.