



Lab Set-Up Pointers for New Researchers Working with Biological Materials



This guidance document is intended to help new researchers set up their labs in a manner that supports meeting biosafety standard requirements that will apply to their work. The items below are those that are commonly cited during biosafety inspections, and are simplest to address before lab work gets underway.

- 1. Plan to keep food & drink separate from the lab environment.** Consuming food/drink in the lab, or storing food/drink in the lab in a way that it can be exposed to lab hazards can lead to accidental ingestion and lab-acquired infections. For this reason, [CDC/NIH biosafety standards](#) prohibit these practices. Before settling in to your new lab space, work with your team to identify where food/drink can be stored and consumed that is physically separated from the lab environment.
- 2. Assure that all lab chairs have non-porous coverings.** Spills and accidental releases of biomaterials in the lab can impact all items in the immediate area, including lab furniture. Porous fabric coverings cannot be effectively cleaned and disinfected. For this reason, [CDC/NIH biosafety standards](#) call for furniture with non-porous, cleanable coverings. Do not bring fabric chairs into the lab unless absolutely necessary. If these MUST be present, these should be restricted to work stations away from active bench work and common throughways in the lab.
- 3. Don't bring plants or animals into the lab.** Unless these are directly related to the research underway, plants and animals are not permitted in labs performing BSL-2 activities. Regardless of biosafety level, plants and animals in the lab will draw in pests and can harbor contaminants that can impact the quality of cell culture and other microbiological processes.
- 4. Assure that your lab has an accessible handwashing sink & an eyewash.** Both a handwashing sink and an eyewash station are necessary safety equipment in labs at all biosafety levels under the current [CDC/NIH biosafety standards](#). Handwashing is expected to be performed at the conclusion of procedures before exit from the lab, regardless of biosafety level. Handwashing as a routine exit practice will help to assure that biomaterial contaminants do not inadvertently leave the lab on one's person. Lab eyewash stations are expected to meet ANSI Z358.1 requirements for delivery of flushing fluids for at least 15 minutes. Squeeze bottle stations do not meet this standard. Eyewash stations should be routinely function-checked by lab staff (at least monthly). A log is recommended to support ongoing maintenance of this practice. Sinks and eyewash stations should never be blocked or obstructed with lab items.
- 5. Install and maintain biosafety cabinets in accordance with the Biosafety Guidelines: Maintaining, Moving & Transferring Class II Biological Safety Cabinets (BSCs) document (found on the [VU Biosafety webpage](#)).** New BSC installations should not include gas connections as this creates a potential explosion hazard. BSCs should be positioned away from doors, heavy traffic areas, and air supply vents for maximum performance. BSCs need to be certified by a vendor with an NSF49 certification designation prior to first use, annually, and after certain repairs. Gas decontamination to treat the filters needs to be performed before certain repairs and any move when the BSC is used for BSL-2 activities. **Please notify [VU Biosafety](#) of new BSC installs and any scheduled gas decontamination activities.**
- 6. Acquire sharps containers appropriate for your sharps waste. Don't use sharps containers for collection of non-sharps waste.** Sharps containers come in all shapes and sizes. If your lab will use a limited number of smaller devices, acquire smaller benchtop containers, ideally with a horizontal drop configuration. Avoid acquiring or using large, floor model containers if at all possible. These larger containers take a large amount of floor space, they don't promote ready disposal of

sharps, and they are often difficult to dispose of. Additionally, do not “adapt” large sharps containers for use as a non-sharps biohazardous waste receptacle.

7. Determine your method of biohazardous waste disposal before starting work with biological materials.

- If your lab is located in a VU-owned building, you will need to establish a pickup with the contract service that serves that building. Because the waste is shipped over public roads, your lab will also need to become qualified in accordance with U.S. Department of Transportation rules to prepare and sign off on shipments of your waste. Those who need to be qualified can self-assign the training in Oracle Learn. Review **Regulated Medical Waste in VU Buildings** on the [VU Biosafety webpage](#) for more information on waste packaging and shipping pointers.
- If your lab is located in a VUMC-owned building, your bagged biohazardous waste and permanently closed sharps containers will be collected by Environmental Services for final treatment and disposal. Review the [VUMC Lab Guide: Red Bag Biowaste Collection SaniPak FAQ](#) for details on this process.

8. If your lab will perform BSL-2 work, plan for body coverings. The [CDC/NIH biosafety standards](#) require the use of a lab coat, smock, or gown (along with fluid-resistant disposable gloves) by those who are working at BSL-2. Before purchasing lab coats, you should contact your departmental administrative officer to determine the availability of laundering services for these items. (They cannot be sent home for personal laundering.) In some instances, purchasing fluid-resistant disposable smocks or gowns may be an easier and more economical option. (VU Biosafety can assist with product identification if needed.) Regardless of the body covering chosen, it should be configured to allow for total coverage of the forearm (i.e., gathered cuff or cuff with thumb loop).

9. If you will be working with human-derived materials (including cells), select an EPA-registered product. The [OSHA Bloodborne Pathogens \(BBP\) Standard](#) requires that disinfectants used in conjunction with BBP-risk materials be EPA-registered for destruction of HIV and HBV. **Ethanol alone does not meet this requirement.** Check your product labels to assure that your product meets this requirement. For more guidance, review the **Disinfectant Guide for Human-derived Materials Work** document on the [VU Biosafety webpage](#).

10. Determine the biosafety training needs for your research team’s activities, and start a training file. All new personnel who will be working with biological materials (and their supervising Principal Investigators) need to complete the Biosafety 101: Standard Microbiological Practices online module as a first step in satisfying training requirements. This module is available for self-assignment in Oracle Learn. Those who will work with human-derived materials or other materials requiring BSL-2 practices will require additional training. Review the Biosafety Training Table or contact [VU Biosafety](#) for more details

11. Prepare and submit an Institutional Biosafety Committee registration when you are ready to begin work with biological materials. Biomaterials included in the purview of the Institutional Biosafety Committee (IBC) include: recombinant or synthetic nucleic acid molecules, infectious agents, human-derived materials, nonhuman primate-derived materials, and biological toxins. The IBC meets monthly and, generally speaking, VU Biosafety can help you get your registration ready for the agenda within one month’s time. Please contact [VU Biosafety](#) to notify us of your need to register and to receive the current VU IBC registration form. **Please note: If your biomaterials will be used on an animal protocol, additional preparation and review time will be needed.** Please notify VU Biosafety at the same time that you are preparing or revising your animal protocol for the [IACUC](#) to minimize unnecessary review delays.