

## UM Biosafety Designated Standards for Laboratories

### Applicability of Standard Microbiological Practices

Standard Microbiological Practices (SMPs) are generally defined as the basic “hygiene” practices that apply to **all** labs, regardless of containment level, that manipulate microorganisms or any biological materials that contain microorganisms. SMPs serve to minimize the spread of contamination generated through lab processes and to protect both personnel and the environment. As such, they are often cited by regulatory and granting agencies such as NIH, CDC, OSHA, and USDA APHIS as minimum standards to be followed in biological research laboratories. An outline of SMPs can be found in the [U-M Biosafety Manual](#). These SMPs apply to a broad spectrum of lab activities including:

- Manipulation of any microbes including bacteria, viruses, fungi, and protozoa.
- Manipulation of materials that may contain microbes including animal and plant tissues, soil samples, and water samples.
- Receiving, processing, and testing of diagnostic samples.
- Research involving recombinant DNA molecules, transgenic animals, or genetically modified plants.
- Manipulation of animals or plants that are experimentally infected with microbes.
- Work with biological toxins and other bioactive molecules.

### BSL1 Standards for UM Laboratories

*Labs designated as **BSL1** follow the practices, PPE, and facility requirements outlined here:*

Standard Microbiological Practices (SMPs)

All laboratory-related incidents, injuries, illnesses, and near misses are reported to EHS

Special Practices

- None

Personal Protective Equipment (PPE)

- Gloves
- Lab coat while working in lab
- Protective eyewear

Facility Requirements

- Doors for access control
- Lab can be easily cleaned and support anticipated uses (no carpet, fabric furniture, or porous benchtops)
- Sink for handwashing
- Eyewash station readily available in the lab
- Illumination is adequate for all activities
- Screens for windows opening to the exterior
- BSCs and primary containment systems are installed and operated in a manner to ensure their effectiveness

## BSL2 Standards for UM Laboratories

Labs designated as **BSL2** follow the practices, PPE, and facility requirements outlined here:

### Standard Microbiological Practices (SMPs)

All laboratory-related incidents, injuries, illnesses, and near misses are reported to EHS

### Special Practices

- Access to lab controlled while working
- Lab personnel demonstrate proficiency in SMPs. Training for techniques requiring BSL2 containment must be documented
- Medical surveillance as appropriate and offered available immunizations
- Biological Safety Cabinets (BSC)s or other containment devices used for aerosol generating procedures
- Lab equipment is routinely decontaminated
- A method for decontaminating all laboratory waste is available

### Personal Protective Equipment (PPE)

- Gloves
- Lab coat while working in lab. Alternatives may be determined by risk assessment (e.g. disposable gowns)
- Protective eyewear
- Face protection for splashes when handled outside of a biosafety cabinet or containment device
- Risk assessment considers whether respiratory protection is needed

### Facility Requirements:

- All BSL1 requirements plus the following:
- The sink should be located near the exit door
- Door(s) should be self-closing and lockable
- Protected vacuum lines
- Laboratories should be under negative or neutral pressure, new constructions should be designed to be negative with no recirculation of air to spaces outside of the lab