

## ASU fact sheet

### Personal protective equipment, or PPE, requirements for work with animals

The Centers for Disease Control, or CDC, and the National Institutes of Health, or NIH, have established four levels of animal biosafety required for the use of experimentally-infected animals housed in indoor research facilities (e.g., vivaria) and also for the maintenance of laboratory animals that may naturally harbor zoonotic infectious agents. The CDC/NIH document, "[Biosafety in Microbiological and Biomedical Laboratories](#)," or BMBL, describes the details of the four animal biosafety levels which are designed to provide increasing levels of protection to personnel and to the environment, and are recommended as minimal standards for activities involving infected laboratory animals. A brief summary of each ABSL is provided below:

- **ABSL-1:** Required for work in animals involving well-characterized agents that are not known to cause disease in immunocompetent adult humans and present minimal potential hazard to personnel and the environment.
- **ABSL-2:** Required for work involving laboratory animals infected with agents associated with human disease and pose moderate hazards to personnel and the environment, and also addresses hazards from ingestion as well as from percutaneous and mucous membrane exposure.
- **ABSL-3:** Required for work with laboratory animals infected with indigenous or exotic agents, agents that present a potential for aerosol transmission, and agents causing serious or potentially lethal disease.
- **ABSL-4:** Required for work with animals infected with dangerous and exotic agents that pose a high individual risk of aerosol-transmitted laboratory infections and life-threatening disease that is frequently fatal, for which there are no vaccines or treatments; or a related agent with unknown risk of transmission.

Personal protective equipment varies depending upon the animal biological safety level. Please refer to the table below for specific requirements for each of the four animal biosafety levels.

Animal Biological Safety - Personal Protective Equipment Requirements*			
ABSL-1	ABSL-2	ABSL-3	ABSL-4
<ul style="list-style-type: none"> <li>• <b>Protective laboratory coats, gowns, or uniforms</b> recommended to prevent contamination of personal clothing.</li> <li>• <b>Eye, face, and respiratory protection</b> should be used in rooms containing infected animals.</li> <li>• <b>Protective eyewear</b> must be worn when conducting procedures that have the potential to create splashes of microorganisms or other hazardous materials.</li> <li>• <b>Gloves</b> must be worn to prevent skin contact with contaminated, infectious, and hazardous materials, and when handling animals.</li> <li>• <b>Long hair</b> is restrained so that it cannot contact hands, animals, specimens, containers, or equipment.</li> <li>• Additional PPE is considered for persons working with large animals.</li> <li>• Personnel with NHP exposure assess the risk of mucous membrane exposure and wear PPE (e.g., face shield, surgical mask, goggles), as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Protective laboratory coats, gowns, or uniforms</b> must be worn while in areas where infectious materials and/or animals are housed or manipulated.</li> <li>• <b>Eye and face protection</b> (mask, goggles, face shield or other splatter guard) must be worn when performing manipulations or activities that may result in splashes or sprays from infectious or other hazardous materials and when the animal or microorganisms must be handled outside the BSC or physical containment device.</li> <li>• <b>Gloves</b> must be worn to prevent skin contact with contaminated, infectious and hazardous materials and when handling animals.</li> <li>• <b>Eye, face, and respiratory protection</b> should be used in rooms containing infected animals.</li> <li>• <b>Long hair</b> is restrained so that it cannot contact hands, animals, specimens, containers, or equipment.</li> <li>• Additional PPE is considered for persons working with large animals.</li> <li>• Personnel with NHP exposure assess the risk of mucous membrane exposure and wear PPE (e.g., face shield, surgical mask, goggles), as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Disposable personal protective equipment, such as non-woven olefin cover-all suits, wrap-around or solid-front gowns</b>, should be worn (over uniforms or scrub suits) before entering areas where infectious materials and/or animals are housed or manipulated. Front-button laboratory coats are unsuitable.</li> <li>• <b>Eye, face, and respiratory protection</b> must be used in rooms containing infectious materials and in areas where animals are housed or manipulated. [All procedures involving the manipulation of infectious materials must be conducted within a BSC, or other physical containment devices.]</li> <li>• <b>Gloves</b> must be worn to prevent skin contact with contaminated, infectious, and hazardous materials and when handling animals. Double-glove practices may be used.</li> <li>• <b>Boots, shoe covers, or other protective footwear</b>, are used to prevent cross-contamination.</li> <li>• <b>Long hair</b> is restrained so that it cannot contact hands, animals, specimens, containers, or equipment.</li> <li>• Additional PPE is considered for persons working with large animals.</li> </ul>	<ul style="list-style-type: none"> <li>• Not permitted at ASU.</li> <li>• Please refer to the CDC/NIH document, "Biosafety in Microbiological and Biomedical Laboratories" for more information.</li> </ul>

\* Safety is improved when PPE is used in combination with physical containment devices or equipment, such as Biological Safety Cabinets.