

CONDENSED DESCRIPTION OF BIOSAFETY LEVELS

The objective of physical containment is to confine organisms containing recombinant DNA molecules and thus to reduce the potential for exposure of the lab worker, persons outside of the lab, and the environment to organisms containing recombinant DNA molecules. Four levels of physical containment, which are designated as BL1, BL2, BL3, and BL4 are described.

BL1. BL1 is suitable for work involving agents with no known or minimal potential hazard to laboratory personnel or the environment. The laboratory is not separated from the general traffic areas of the building, and work is generally conducted on open bench tops. No special containment equipment is required. Specific considerations include: Standard microbiological practices are enforced. All work surfaces and contaminated wastes are decontaminated. Mouth pipetting is prohibited. Eating drinking, smoking, and apply cosmetics are not permitted in the work area. Persons wash their hands after they handle materials involving organisms containing recombinant DNA molecules and before exiting the laboratory. All procedures are performed carefully to minimize the creation of aerosols. An insect and rodent control program is in effect.

BL2. BL2 is suitable for work involving agents of moderate potential hazard to personnel or the environment. Specific considerations are as for BL1 and in addition: The PI limits access to the laboratory. When the organisms containing recombinant DNA require special provisions (e.g., vaccination), a hazard sign using the universal biohazard symbol is posted on the access door. Lab coats are worn. When appropriate, considering the agent handled, baseline serum samples for lab personnel are collected and stored. A Biosafety manual is prepared or adopted. Spills and accidents which result in overt exposures to organisms containing recombinant DNA molecules are immediately reported to the IBC. Class I or II biological safety cabinets are used whenever: (i) procedures with a high potential for creating aerosols are conducted or (ii) high concentrations or large volumes of organisms containing recombinant DNA are used.

BL3. BL3 is applicable to clinical, diagnostic, teachings, research, or production facilities in which work is conducted with indigenous or exotic agents which may cause serious or potentially lethal disease as a result of exposure by the inhalation route. Specific considerations are as for BL2 and in addition: Persons under 16 years of age shall not enter the lab. Lab doors are kept closed when experiments are in progress. All activities involving organisms containing recombinant DNA are conducted in biological safety cabinets or other physical containment devices. Molded surgical masks or respirators are worn in rooms containing experimental animals. Lab animals held in a BL3 area shall be housed in partial-containment caging systems, such as Horsfall units. However, conventional caging systems may be used provided that all personnel wear appropriate personal protective devices. Vacuum lines are protected with HEPA filters and liquid disinfectant traps. Passage through two sets of doors is the basic requirement for entry into the lab from access corridors. Access doors to the lab are self-closing. Windows in the lab are sealed. An autoclave is preferably available within the lab. A ducted air ventilation system that directs airflow into the lab through the entry area is provided. The exhaust air is not recirculated to any other area of the building.

BL4. Specific considerations are as for BL3 and in addition: Only persons whose presence is required for program purposes are allowed entry. A logbook signed by all personnel indicates the

date and time of entry and exit. Personnel enter and leave the facility only through clothing change and shower rooms. Personnel shower each time they leave the facility. A system is set up for reporting lab accidents or illnesses. Biological materials to be removed from class III cabinets in a viable or intact state are transferred to a nonbreakable, sealed primary container and then enclosed in a nonbreakable, sealed secondary container that is removed from the facility through a disinfectant dunk tank, fumigation chamber, or an airlock designed for this purpose. No non-viable materials are to be removed unless they first have been autoclaved or decontaminated. Supplies and materials are brought in by way of double-doored autoclave, fumigation chamber, or airlock. Walls, floors, and ceilings of the facility are sealed. An individual supply and exhaust air ventilation system is provided.