

UNCG Biological Hazards Identification/Use Procedures

Principal Investigator

Date

1. **BSL-1 Source Material:** List all BSL-1 materials used in your laboratory: (*check MSDS or vendor info for appropriate biosafety level, Materials of human origin are considered BSL-2, unless proven to be free of pathogens and classified as <BSL-2 by the supplier/MSDS*)

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2. **BSL-2 Agent Information:** For known BSL-2 agent/pathogens, list the specific room(s) in which it will be handled or stored.

“Add” a new agent or “Remove” an agent with which you are no longer working:

Add	Remove	Agent (If recombinant, insert “rDNA” after agent name.)	Biosafety Level	Room(s)	Diseases, Symptoms Caused by Agent
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>				

The Office of Research Compliance must be contacted before obtaining infectious agents or any HHS Select Agents or USDA High Consequence Livestock Pathogens, Toxins or Plant Pathogens. The Office of Research Compliance is the Responsible Official as defined by these regulations.

3. **Other BSL-2 Materials - Samples of Human Origin* & Some Animal Cell Lines:**

Human Blood Cell Lines Other Potentially Infectious Materials None

List type (including cell line) & rooms: _____

Other Potentially Infectious Materials include: (1) Semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

* Materials of human origin are considered BSL-2, unless proven to be free of pathogens and classified as <BSL-2 by the supplier/MSDS.

All persons using such materials must be trained in accordance with the UNCG Bloodborne Pathogens Exposure Control Plan: http://www.uncg.edu/sft/pdfs/safety_manual/Bloodborne%20Policy%202007%20Dec%204.pdf
 Appendices: <http://www.uncg.edu/sft/pdfs/Appendix%20.pdf>

4. **Recombinant DNA:** Is recombinant DNA handled in your laboratory? YES NO
 If viral vectors are used, they must be listed above under “2. BSL-2 Agent Information”
 Please be aware that some rDNA experiments require Institutional Biosafety Committee (IBC) approval.
5. **Medical Surveillance:** Required vaccinations including Hep-B, pre-assignment and periodic serum samples if applicable: _____
6. **Risk Assessment:** Identify any routes of exposure and high risk laboratory procedures, including those that potentially result in aerosolization (centrifugation, sonication, etc.). _____

UNCG Biohazardous Materials Use Procedures

Administrative Controls

Standard Microbiological Practices (Including BSL-1):

1. All laboratory persons must wash their hands after handling viable materials, after removing gloves, and before leaving the laboratory.
2. Eating, drinking, smoking, handling contact lenses, and applying cosmetics are not permitted in the laboratory.
3. Mouth pipetting is prohibited.
4. All procedures are performed carefully to minimize the creation of splashes or aerosols.
5. Laboratory equipment and work surfaces must be decontaminated with an effective disinfectant on a daily basis after work with infectious materials is finished and after any spill or splash of viable material.
6. Contaminated equipment must be decontaminated before it is sent for repair or maintenance or packaged for transport in accordance with applicable local, state, or federal regulations, before removal from the facility. Contact the EHS Dept. for assistance.
7. All cultures, stocks, and other regulated wastes must be kept in appropriate containers that are labeled with the universal Biohazard symbol, until treated.
8. A biohazard sign must be present outside all lab entryways, identifying the Biosafety Level and the Principal investigator and safety supervisor contact information. Contact the EH&S Department for assistance.
9. Animals not involved in the work being performed are not permitted in the laboratory.
10. UNCG Facilities Operations maintains an insect and rodent control program. If problems are encountered contact them at 334-5485 for further control.

Sharps:

1. Needles and syringes or other sharp instruments should be restricted in the laboratory for use only when there is no alternative, such as parenteral injection, phlebotomy, or aspiration of fluids from laboratory animals and diaphragm bottles. Plastic ware should be substituted for glassware whenever possible.
2. Only needle-locking syringes or disposable syringe-needle units (i.e., needle is integral to the syringe) are used for injection or aspiration of infectious materials. Used disposable needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal; rather, they must be carefully placed in conveniently located puncture-resistant containers used for sharps disposal. Non-disposable sharps must be placed in a hard-walled container for transport to a processing area for decontamination, preferably by autoclaving. All containers must be labeled with warning labels.
3. Syringes which re-sheath the needle, needleless systems, and other safety devices are used when appropriate.
4. Broken glassware must not be handled directly by hand, but must be removed by mechanical means such as a brush and dustpan, tongs, or forceps. Containers of contaminated needles, sharp equipment, and broken glass must be decontaminated by autoclaving and then labels removed before disposal.
5. Disposal of contaminated sharps must be done in accordance with the UNCG Regulated Medical Waste Policy.

BSL-2 (In addition to above):

1. Laboratory personnel must receive appropriate immunizations or tests (at no cost) for the agents handled or potentially present in the laboratory (e.g., hepatitis B vaccine or TB skin testing).
2. Access to the laboratory will be limited or restricted by the laboratory director when work with infectious agents is in progress. In general, persons who are at increased risk of acquiring infection, or for whom infection may have serious consequences, are not allowed in the laboratory or animal rooms. For example, persons who are immunocompromised or immunosuppressed may be at increased risk of acquiring infections. The laboratory director has the final responsibility for assessing each circumstance and determining who may enter or work in the laboratory.
3. Infectious or potentially infectious material must be identified with a recognizable biohazard label.
4. Infectious materials must be secured in locked locations when authorized researchers are not present.

Describe any additional precautions taken to limit personnel exposure:

Engineering Controls

Biosafety Equipment and PPE:

1. Hand washing sink available within room with disinfecting soap.
2. Non-porous work surfaces (benchtops, chairs).
3. Face protection (goggles, mask, face shield or other splatter guard) must be used for anticipated splashes or sprays of infectious or other hazardous materials to the face when the microorganisms must be manipulated outside the Biological Safety Cabinet.
4. Gloves must be worn when hands may contact potentially infectious materials, contaminated surfaces or equipment. Wearing two pairs of gloves may be appropriate. Gloves are disposed of when overtly contaminated, and removed when the integrity of the glove is compromised. Disposable gloves are not washed, reused, or used for touching "clean" surfaces (keyboards, telephones, etc.), and they should not be worn outside the lab. Alternatives to powdered latex gloves, such as Nitrile gloves should be used. Hands are washed following removal of gloves. Gloves must be disposed of with other Biohazardous Waste. Chemical hazards must be considered for appropriate glove choice.

BSL-2 (In addition to above):

1. Properly maintained **Biological Safety Cabinets**, preferably Class II, or other appropriate personal protective equipment or physical containment devices are used whenever:
 - a. Procedures with a potential for creating infectious aerosols or splashes are conducted. These may include centrifuging, grinding, blending, vigorous shaking or mixing, sonication, opening containers of infectious materials whose internal pressures may be different from ambient pressures, inoculating animals intranasally, and harvesting infected tissues from animals or embryonate eggs.
 - b. High concentrations or large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory if sealed rotor heads or centrifuge safety cups are used, and if these rotors or safety cups are opened only in a biological safety cabinet.
2. Biosafety Cabinets must be certified annually or whenever moved or repaired by a factory certified specialist. This is the responsibility of the Principal Investigator and the Department.
3. Protective laboratory coats, gowns, or smocks designated for laboratory use must be worn while in the laboratory. This protective clothing must be removed and left in the laboratory before leaving for non-laboratory areas. All protective clothing must be either disposed of in the laboratory or autoclaved.
4. An eyewash station must be readily available.
5. The materials required for the Biohazard Spill Kit shall be available (though not necessarily consolidated in one location) in the areas where work is being conducted with biohazardous materials. The supplies available in a Biohazard Spill Kit should include, but are not limited to:
 - a. Nitrile disposable gloves
 - b. Face masks, lab coats (or gowns), and disposable shoe covers (booties)
 - c. Goggles or safety glasses with side shields
 - d. Absorbent material, such as absorbent paper towels, granular absorbent material, etc.
 - e. All-purpose disinfectant, such as normal household bleach (freshly diluted 1:10) or an iodophor (e.g., Wescodyne) or a quarternary ammonia preparation (e.g., EndBac II)
 - f. Autoclavable bucket for diluting disinfectant (this can be used to store the kit contents when not in use)
 - g. Something disposable or easily disinfected such as tongs, forceps, manila folders, etc. for picking up broken glass, other contaminated sharps, or contaminated absorbent material
 - h. Biohazard sharps waste container(s)
 - i. Autoclavable biohazard waste bags

Describe any additional engineering controls:

Waste Disposal Procedures:

1. All biohazardous waste must be collected in a container with a cover which prevents leakage during collection, handling, processing, and storage. The container must be labeled with the Biohazard symbol and any other appropriate hazard warning. Containers must be closed prior to transport out of the immediate lab area.
2. All potentially infectious material must be autoclaved or treated in accordance with the UNCG Regulated Medical Waste Policy prior to disposal. <http://www.uncg.edu/sft/pdfs/medicalwasetpolicy12.09.b.pdf>
3. Time and temperatures settings for adequate sterilization may vary based upon the volume of waste and the ability of steam to penetrate the load. Individual trials should be done to determine the proper loading and time settings. Minimum autoclave cycle time for biohazardous waste is 45 minutes at 121°C (250°F).
4. Autoclave must be validated with biological indicators weekly (or with use if less frequent) if used to treat Regulated Medical Waste.

Describe additional waste treatment/disposal procedures:

BSL-2 Spill Cleanup Procedures:

1. Any potentially contaminated clothing shall be removed and placed in a biohazard waste bag for decontamination.
2. Hands and any other contaminated skin shall be washed thoroughly with soap and water.
3. Appropriate PPE shall be worn. At a minimum, nitrile gloves, eye protection, and a lab coat shall be worn. Face shield or mask (splash protection) is advised for spills greater than ~10 ml outside a BSC or any spill inside a centrifuge. If there is a potential for aerosolization of the spilled material,
4. If outside the BSC, evacuate lab for 20-30 minutes in order to allow aerosols to settle.
5. Return and cover with paper towel before applying an appropriate disinfectant to avoid aerosolization.
6. Allow 20 minutes for diffusion/disinfection.
7. Apply additional paper towels as needed and carefully transfer paper to an autoclavable container.
8. Clean surfaces with again with disinfectant and immediately autoclave all associated materials.
9. Report spill to the EH&S Dept. and determine if medical evaluation, surveillance, and treatment are appropriate and maintain a written record.

Describe any additional procedures for personnel exposures or spills:

Shipping of Biohazardous Materials:

1. Shipping any biohazardous materials (even small samples) must be coordinated with the UNCG EHS Dept.

List any biohazardous materials that may be shipped by your lab.

UNCG Biological Safety Manual:

Additional information can be found at <http://www.uncg.edu/sft/pdfs/~1205838.pdf>