EMORY UNIVERSITY
Environmental Health and Safety Office
Research Administration

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BSL-3 FACILITY SELF-INSPECTION FORM

Date of Survey: _____ **Conducted By:** _____

Building: _____ Room Number: _____ Department: _____

Principal Investigator: _____ Phone Number: _____

Email Address: _____

Responsible Person (*other than PI*): _____

Phone Number: _____ Email Address: _____

NOTES:

- ***Completion of annual laboratory self-inspection will assist us to be compliant for CDC, NIH, OSHA and EPA***
- ***All forms or guidelines are available on the EHSO website, www.ehso.emory.edu***

Instructions:

- Complete this form manually while inspecting the lab.
- File the completed Lab Self-Inspection Form in the Lab Safety Binder.
- Complete a CAPS Form for each lab space, including cold, tissue culture and equipment room.
- Email CAPS Form to biosafe@emory.edu.

Item #	Item	Yes	No	CTI	N/A	Comments *CTI = Corrected at Time of Inspection*
SECTION A: GENERAL LAB SAFETY						
1.0	**SIGNAGE**					
	Laboratory Entry: Core Signage					
1.1	The laboratory door(s) are posted with the current EHSO issued signage and display up-to-date emergency contact information.					
2.0	**DOCUMENTATION & TRAINING**					
	Documentation					
2.1	All personnel know how to access the Environmental Health and Safety Office (EHSO) website.					
2.2	All personnel know how to access Emory University's Bloodborne Pathogen Exposure Control Plan on the EHSO website.					
2.3	All personnel know how to access Emory University's Biosafety Manual on the EHSO website.					
2.4	All personnel know how to access Emory University's Biosafety Level 3 Manual on the EHSO website.					
2.5	All personnel know how to access Emory University's Chemical Hygiene Plan on the EHSO website.					

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2.6	All personnel know how to access Safety Data Sheets from the manufacturers' sites and/or from the EHSO webpage (both sources are available 24/7).					
2.7	An up-to-date Chemical Inventory is available inside each laboratory.					
2.8	All personnel have read and understand their BSL-3 Facility Specific SOPs.					
2.9	Facility specific emergency plans are available and up-to-date.					
2.10	Entry/Exit records have been maintained are available for review.					
2.11	Visitor checklists have been maintained are available for review.					
2.12	Weekly inspections have been conducted and are available for review.					
2.13	If Select Agents are present in the lab, are they registered with EHSO? (www.cdc.gov/od/sap)					
	Training					
2.14	All personnel have taken the Laboratory Safety Training course within the past year and documentation is available.					
2.15	All personnel have attended Radiation Safety Training within the past 3 years (*Radiation labs only*).					
2.16	All personnel have read and signed the *Lab Rat* newsletter, which is kept in the safety binder provided by EHSO.					
2.17	All personnel who work with human blood, bodily fluids, tissues, cell lines, etc. have completed the Blood Borne Pathogens training within the last year and documentation is available **(*this training is independent of Laboratory Safety Training*).**					
2.18	Volunteers working in the lab have completed the EHSO Registration Form for volunteers and have completed Laboratory Safety Training.					
2.19	All BSL-3 training documents are up to date and available for review.					
	Shipping Training					
2.20	If your lab ships biological/infectious agents or dry ice, has an individual from the lab taken Compliance Training for Shipping Infectious and Biological Substances with the past 2 years?					
2.21	If yes, please list the name of the trained person and the last training date below: Name: _____ Date: _____					
3.0	**CHEMICAL SAFETY**					
	Chemical Storage					
3.1	All chemicals are labeled with the full chemical name (Example: Ethyl alcohol - not ETOH).					
3.2	All chemical container labels are in English and are legible.					
3.3	Chemical containers are in good condition (i.e. completely intact and clean on the outside).					

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3.4	Legacy / obsolete chemicals (inherited, unused for 10+ years, obvious container deterioration) are collected and given to EHSO for disposal.					
3.5	Chemicals are stored by compatibility (i.e. flammables and oxidizers are separated, acids and bases are separated, etc).					
3.6	Mineral acids are stored separately from organic acids.					
3.7	Perchloric acid is stored separately from all other materials.					
3.8	Chemicals are stored in appropriate locations (i.e. flammables are in a flammables cabinet, corrosives are in a corrosives cabinet, etc.).					
3.9	Corrosives are stored in a secondary container (Example: polypropylene bin).					
3.10	Shelves, cabinets, and counter tops are stable and not overloaded, and containers are placed on shelves in a safe manner.					
3.11	Chemicals are not stored on the floor.					
3.12	Chemicals are stored in such a way as to prevent release to the environment (stored away from sink drains; containers are tightly capped).					
	Flammable Liquids Storage					
3.13	Flammables stored are in an approved flammable liquids cabinet. (*Contact EHSO with questions.)*					
3.14	Volume of flammable liquids outside the cabinet does not exceed 16 liters/100 ft^2 of lab space.					
3.15	Volatile liquids are stored in an explosion-proof refrigerator when required.					
3.16	Aerosol cans are kept away from heat and ignition sources.					
	Special Chemical Hazards					
3.17	Acetyl cholinesterase inhibitors are stored securely and in compatibility groups.					
3.18	Pyrophoric compounds are stored by compatibility groups.					
3.19	Shock sensitive compounds are stored by compatibility groups. *For those compounds that require underwater storage (reactive when dry), periodic inspections of the material are conducted.*					
3.20	Unstable materials, cryogens, and water-reactive materials are handled properly.					
3.21	Carcinogens, teratogens, mutagens are stored securely and in compatibility groups.					
3.22	Written procedures are in place for the use of acutely hazardous chemicals (i.e. carcinogens, reproductive hazards, highly toxic substances, etc).					
3.23	Laboratory personnel know the peroxide-forming chemicals used in the lab.					
3.24	Peroxide-forming chemicals are labeled with the date received and the expiration date.					
3.25	Containers of peroxide-forming chemicals are disposed of properly through EHSO (*immediately notify EHSO*).					
	Mercury					
3.26	Alternatives to mercury are used, if possible.					

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3.27	All mercury thermometers have been replaced with mercury-free thermometers.					
3.28	Mercury containing devices still in use are intact and are not leaking. Mercury leaks or spills are reported to EHSO immediately.					
3.29	Unused mercury containing devices (thermometers, thermostats, etc) are disposed of through EHSO.					
	DEA Controlled Substances					
3.30	Federal DEA License is available.					
3.31	State of Georgia Board of Pharmacy License is available.					
3.32	DEA-regulated items are secured in a locked container.					
3.33	Lab has proper record keeping of stock, usage, and disposal.					
3.34	Expired drugs are disposed of properly.					
	Compressed Gas Cylinders					
3.35	Gas cylinders are tagged as empty or full.					
3.36	Gas cylinders are labeled as to their contents.					
3.37	Cylinders are secured to a stationary surface by a chain link or strap.					
3.38	Gas cylinders are stored upright.					
3.39	Gas cylinders are capped when not in use and have a pressure regulator when in use.					
3.40	Lecture bottles have been replaced with the appropriate cylinders.					
4.0	**LABORATORY WASTE DISPOSAL**					
	Chemical Waste ***Note:*** *For more details regarding this section, review the Chemical Waste Disposal in Laboratories document at http://www.ehso.emory.edu/content-guidelines/GuidelinesforChemicalWasteDisposal.pdf*					
4.1	EHSO picks up all chemical waste from the facility.					
4.2	Chemicals are not put down the drain, in the regular trash, or in biomedical waste.					
4.3	All chemical waste containers are labeled with EHSO Chemical Waste Labels.					
4.4	All chemical / chemical waste containers are closed except when in use.					
4.5	Chemical wastes are compatible with their containers and are stored by compatibility (i.e. acid waste is not stored with alkaline waste).					
4.6	EHSO picks up all empty P-listed chemical containers from the facility.					
4.7	EHSO picks up expired pharmaceutical wastes (excluding DEA controlled substances) from the facility.					
	Biological Waste					
4.8	Biomedical waste containers are labeled with the Biohazard symbol and the word “Biohazard”.					
4.9	An orange / red Biohazard bag is used to dispose of biohazardous waste.					
4.10	Biohazard waste containers are closed except when adding waste.					
4.11	Biohazards are not put down the drain or in regular trash.					
4.12	Biohazard waste is not mixed with chemical waste.					

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4.13	Facility-specific SOPs for the treatment and removal of biohazard waste from the facility are available and adhered to.					
4.14	Infectious Waste Manifests from Stericycle are maintained and made available upon request.					
	Sharps Handling & Waste					
4.15	Sharps are disposed of in a sharps disposal container and the containers are no greater than ¾ full.					
4.16	Sharps containers are tightly lidded to prevent the contents from spilling.					
	Radioactive Waste					
4.17	EHSO picks up radioactive waste for disposal.					
	Other Waste					
4.18	EHSO picks up batteries (other than alkaline) for disposal.					
4.19	EHSO picks up lamps (fluorescent, incandescent, halogen, UV, etc) for disposal.					
4.20	Aerosol cans are given to EHSO for disposal.					
	Autoclave Use					
4.21	A facility specific SOP for autoclave validation is available and adhered to.					
4.22	Documentation of autoclave validation is maintained and made available upon request.					
4.23	Autoclaves are validated at least weekly.					
5.0	**HOUSEKEEPING / WORK PRACTICES**					
5.1	Sinks are equipped with soap and paper towels.					
5.2	Sinks are free of foreign matter that could cause drain stoppage.					
5.3	There is no storage of chemicals under sinks, except for cleaning products.					
5.4	Lighting is adequate for work conducted.					
5.5	Lab refrigerators and freezers are labeled “NO FOOD OR DRINK ALLOWED”.					
5.6	Lab microwaves are labeled “NO FOOD OR DRINK ALLOWED”.					
5.7	Trip hazards (equipment on floor, cardboard boxes, electrical cords, etc.) are not present.					
5.8	All personnel are aware that they should not work alone with hazardous materials unless they notify a co-worker who will remain in close proximity.					
5.9	Reagents and samples are labeled and stored in appropriate containers in refrigerators and freezers.					
5.10	Lead bricks are not used inappropriately in the lab (e.g. as a door stop).					
5.11	Personnel electronic devices (i.e., iPods, cell phones) are not used in the facility.					
6.0	**ENGINEERING CONTROLS (PRIMARY & SECONDARY CONTAINMENT)**					
	Biological Safety Cabinets (BSC)					
6.1	All active BSCs have been certified within the last 12 months by a vendor approved by Emory.					
6.2	The certification label is attached and initialed by a vendor approved by Emory.					

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6.3	Intake and rear grilles are clear of obstructions.					
6.4	Bunsen burners and/or open flames are not used in biological safety cabinets (Open flames are not permitted inside BSCs; consider an alternative, such as an electrical bacticinerator).					
6.5	No items are stored on top of the BSC.					
6.6	Work surfaces are clean and free of visible biological residue.					
6.7	The sash alarm is not muted.					
	Chemical Fume Hoods					
6.8	Solvents are **NOT** evaporated in the fume hood. *(For rinsates and empty chemical containers, refer to the Chemical Waste Disposal Guidelines at http://www.ehso.emory.edu/content-guidelines/GuidelinesforChemicalWasteDisposal.pdf).*					
6.9	All chemical fume hoods have been certified within the last 12 months by EHSO.					
6.10	The certification label is attached and initialed by EHSO.					
6.11	Fume hood air-flow is not compromised by storage or equipment.					
6.12	The fume hood is free of material and equipment stored long term.					
6.13	Equipment outside the hood does not inhibit airflow.					
6.14	The work surfaces are clean and free of obvious chemical residue.					
6.15	Vented storage areas under the hood are free of spilled chemicals or solvents.					
6.16	The sash position is correct. (The sash is at 18 inches or less when in use and closed when not in use.)					
6.17	Tubes, hoses, and cables are routed through transfer / access ports or other openings that will not inhibit proper sash closer and operation.					
6.18	There are no cracks or chips in the sash glass.					
6.19	Hood alarms are not muted.					
6.20	Appropriate visual monitor is present to determine fume hood function.					
7.0	**PERSONAL PROTECTIVE EQUIPMENT (PPE)**					
7.1	Facility specific SOPs for Entry/Donning of PPE and Exit/Doffing of PPE are available and adhered to.					
7.2	Reusable PPE is autoclaved out of the facility prior to laundry by an Emory approved vendor.					
7.3	Non-reusable PPE is disposed of as biological waste.					
7.4	All personnel know how to access and use glove guides via the EHSO website.					
7.5	Gloves are appropriate for the hazards and worn when needed (*for guidance, review the Glove Guides at http://ehso.emory.edu/resources/index.html*).					
7.6	Safety glasses with side protection meeting ANSI Z87.1 are available and worn when appropriate.					
7.7	Goggles are available and used when there is potential for splashes and spatters.					

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7.8	Face shields are available and used when needed.					
7.9	Lab coats are available for use.					
7.10	Lab coats or other appropriate protective clothing are worn while working (Examples: shoe covers, surgical masks, gowns).					
7.11	Appropriate clothing is worn to minimize exposure to hazardous materials.					
7.12	Closed toed shoes are worn in all times when working in the lab.					
	Hearing Protection					
7.13	Hearing protection is worn where and when appropriate. *For additional guidance, access the following link: http://www.ehso.emory.edu/content-manuals/SAF_366HearingConservationProgram.pdf*					
7.14	Noise Training is current for those who use it.					
	Respirators					
7.15	Type of respirator required: ☐ Disposable Particulate (N-95) ☐ Cartridge respirator (half or full face) ☐ Powered air purifying respirator					
7.16	If personnel are wearing respirators voluntarily, they have read and understand 'Information for Employees Using Respirators When not Required Under Standard', Appendix D (refer to https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9784))					
7.17	Medical clearance for respirator use is renewed annually.					
7.18	Fit testing / training is renewed annually.					
7.19	Respirators are regularly cleaned, disinfected, inspected, and stored appropriately.					
8.0	**EMERGENCY PROCEDURES**					
8.1	The Emory University *"Just in Time – Guide to Campus Emergencies"* has been posted in the lab.					
8.2	Personnel in the lab know how to report accidents and injuries.					
8.3	Laboratory personnel have a Non-human primate card if working with NHP tissue, fluids, etc.					
8.4	Facility specific SOPs are in place for emergencies. All personnel working in the facility understand the emergency plans and are prepared to act in case of an emergency.					
	Eyewashes and Showers					
8.5	A double ocular hands free eyewash is available in the lab. **NOTE**: a single ocular drench hose is not sufficient for eye wash.					
8.6	The eyewash in the lab is tested and documented monthly by lab personnel.					
8.7	There is an Emergency Eyewash sign near the eyewash.					
8.8	The eyewash is free of obstruction.					
8.9	The eyewash protective caps are in place.					
8.10	A safety shower is available.					
8.11	The safety shower is free of obstruction.					

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	Spill Response					
8.12	The lab is equipped with a biological spill kit.					
8.13	Spill procedures are in place and lab personnel are trained to clean up materials in the quantities they normally work with.					
9.0	**FIRE SAFETY**					
9.1	The correct type of fire extinguisher is available for the class of fire possible in the area.					
9.2	All Personnel have had annual fire extinguisher education or training by either: (1) Attending hands-on training from the Emory Fire Safety Office (2) Viewing a Fire Extinguisher Training video, or (3) Reading Fire Educational material issued to all employees (***Lab Rat Research Safety Newsletter***, October Edition for the current year)					
9.3	The annual inspection of the fire extinguisher was completed by the outside contractor on _____.					
9.4	The extinguisher is in the proper location and not obstructed.					
9.5	A visual inspection of each fire extinguisher in the lab is conducted monthly.					
9.6	Storage is 18” from the ceiling so that the spray from the sprinkler heads is not obstructed when in use.					
9.7	Fire alarm pull-stations are unobstructed.					
	Egress					
9.8	The route of egress from the lab is not impeded (i.e. 36” of clearance).					
9.9	Evacuation routes are displayed in the hallway, and all personnel are familiar with them (*They are generally located by the elevators*).					
9.10	Exits, aisles, and stairs outside of the lab are free of obstructions.					
9.11	All personnel know how to dial 911 (7-6111 for Emory Police) in the event of an emergency.					
10.0	**ELECTRICAL SAFETY**					
10.1	Electrical cords are appropriate for the equipment.					
10.2	Electrical outlets are not overloaded.					
10.3	Cords are secured properly and do not pose a trip hazard.					
10.4	Electrical cords are not damaged or frayed.					
10.5	Electrical cords are grounded with no 3-pin to 2-pin adapters.					
10.6	Ignition sources such as hot plates are not located near flammable liquids.					
10.7	All personnel recognize equipment that has been locked out or tagged out.					
11.0	**RADIATION SAFETY**					
11.1	Inspection has been completed by RSO.					
11.2	Isotopes used:					

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11.3	There is proper labeling of radiation areas.					
12.0	**LASER SAFETY**					
12.1	Class 3B and/or Class 4 lasers are operated in the laboratory ***(refer EHSO website for criteria for Class 3B and Class 4 lasers - pg. 2 of Laser Registration Form)***					
12.2	All Class 3B and/or Class 4 lasers have been registered with EHSO.					
13.0	**ANIMAL USE**					
	Perfusion Experiments					
13.1	If you perform perfusion experiments (i.e., formaldehyde), have lab personnel been monitored for formaldehyde exposure? Refer to the Formaldehyde Questionnaire Form.					
	Isofluorane					
13.2	If you use isofluorane and have an isofluorane vaporizer in the facility, when was the vaporizer last certified? Make sure to list this date on your corrective action form: _____					
	SECTION B: BIOSAFETY * *These questions are based on the Biosafety Level 3 section of Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, pages 38-45*					
1.0	**STANDARD MICROBIOLOGICAL PRACTICES**					
1.1	The laboratory supervisor enforces the institutional policies that control access to the laboratory.					
1.2	Persons wash their hands after working with potentially hazardous materials and before leaving the laboratory					
1.3	Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human consumption are not be permitted in laboratory areas. Food is stored outside the laboratory area in cabinets or refrigerators designated and used for this purpose.					
1.4	Mouth pipetting is prohibited; mechanical pipetting devices are used.					
1.5	Policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware are developed and implemented. Whenever practical, laboratory supervisors adopt improved engineering and work practice controls that reduce risk of sharps injuries.					
1.6	Careful management of needles and other sharps are of primary importance. Needles are not bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.					
1.7	Used disposable needles and syringes are carefully placed in conveniently located puncture-resistant containers used for sharps disposal.					
1.8	Non-disposable sharps are placed in a hard walled container for transport to a processing area for decontamination, preferably by autoclaving.					

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1.9	Broken glassware is not handled directly. Instead, it is removed using a brush and dustpan, tongs, or forceps. Plastic ware is substituted for glassware whenever possible.					
1.10	All procedures are performed to minimize the creation of splashes and/or aerosols.					
1.11	Work surfaces are decontaminated after completion of work and after any spill or splash of potentially infectious material with appropriate disinfectant.					
1.12	All cultures, stocks, and other potentially infectious materials are decontaminated before disposal using an effective method. A method for decontaminating all laboratory wastes is available in the facility, preferably within the laboratory (e.g., autoclave, chemical disinfection, incineration, or other validated decontamination method).					
1.13	Materials to be decontaminated outside of the immediate laboratory are placed in a durable, leak proof container and secured for transport.					
1.14	Materials to be removed from the facility for decontamination are packed in accordance with applicable local, state, and federal regulations.					
1.15	A sign incorporating the universal biohazard symbol is posted at the entrance to the laboratory when infectious agents are present. Posted information includes the laboratory's biosafety level, the supervisor's name (or other responsible personnel), telephone number, and required procedures for entering and exiting the laboratory. Agent information is posted in accordance with the institutional policy.					
1.16	An effective integrated pest management program is in place.					
1.17	The laboratory supervisor ensures that laboratory personnel receive appropriate training regarding their duties, the necessary precautions to prevent exposures, and exposure evaluation procedures. Personnel receive annual updates or additional training when procedural or policy changes occur. Personal health status may impact an individual's susceptibility to infection, ability to receive immunizations or prophylactic interventions. Therefore, all laboratory personnel and particularly women of childbearing age are provided with information regarding immune competence and conditions that may predispose them to infection. Individuals having these conditions are encouraged to self-identify to the institution's healthcare provider for appropriate counseling and guidance.					
2.0	**SPECIAL PRACTICES**					
2.1	All persons entering the laboratory are advised of the potential hazards and meet specific entry/exit requirements.					
2.2	Laboratory personnel are provided medical surveillance and offered appropriate immunizations for agents handled or potentially present in the laboratory.					

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2.3	A laboratory-specific biosafety manual is prepared and adopted as policy. The biosafety manual is available and accessible.					
2.4	The laboratory supervisor ensures that laboratory personnel demonstrate proficiency in standard and special microbiological practices before working with BSL-3 agents.					
2.5	Potentially infectious materials are placed in a durable, leak proof container during collection, handling, processing, storage, or transport within a facility.					
2.6	Laboratory equipment is routinely decontaminated, as well as, after spills, splashes, or other potential contamination.					
2.7	Spills involving infectious materials are contained, decontaminated, and cleaned up by staff properly trained and equipped to work with infectious material.					
2.8	Equipment is decontaminated before repair, maintenance, or removal from the laboratory.					
2.9	Incidents that may result in exposure to infectious materials are immediately evaluated and treated according to procedures described in the laboratory biosafety manual. All such incidents are reported to the laboratory supervisor. Medical evaluation, surveillance, and treatment are provided and appropriate records maintained.					
2.10	Animals and plants not associated with the work being performed are not in the laboratory.					
2.11	All procedures involving the manipulation of infectious materials are conducted within a BSC, or other physical containment devices. No work with open vessels is conducted on the bench. When a procedure cannot be performed within a BSC, a combination of personal protective equipment and other containment devices, such as a centrifuge safety cup or sealed rotor are used.					
3.0	**SAFETY EQUIPMENT (PRIMARY BARRIERS AND PPE)**					
3.1	All procedures involving the manipulation of infectious materials is conducted within a BSC (preferably Class II or Class III), or other physical containment devices.					
3.2	Workers in the laboratory where protective laboratory clothing with a solid-front, such as tie-back or wrap-around gowns, scrub suits, or coveralls. Protective clothing is not worn outside of the laboratory. Reusable clothing is decontaminated before being laundered. Clothing is changed when contaminated.					
3.3	Eye and face protection (goggles, mask, face shield or other splash guard) is used for anticipated splashes or sprays of infectious or other hazardous materials. Eye and face protection is disposed of with other contaminated laboratory waste or decontaminated before reuse. Persons who wear contact lenses in laboratories also wear eye protection.					
3.4	Gloves are worn to protect hands from exposure to hazardous materials. Glove selection is based on an					

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	appropriate risk assessment. Alternatives to latex gloves are available. Gloves are not worn outside the laboratory.					
3.5	BSL-3 workers change gloves when contaminated, glove integrity is compromised, or when otherwise necessary. They also wear two pairs of gloves when appropriate					
3.6	Remove gloves and wash hands when work with hazardous materials has been completed and before leaving the laboratory.					
3.7	Do not wash or reuse disposable gloves. Dispose of used gloves with other contaminated laboratory waste. Hand washing protocols are rigorously followed					
3.8	Eye, face, and respiratory protection are used in rooms containing infected animals.					
4.0	**LABORATORY FACILITIES (SECONDARY BARRIERS)**					
4.1	Laboratory doors are self-closing and have locks in accordance with the institutional policies. The laboratory is separated from areas that are open to unrestricted traffic flow within the building. Laboratory access is restricted. Access to the laboratory is through two self-closing doors. A clothing change room (anteroom) may be included in the passageway between the two self-closing doors					
4.2	Laboratories have a sink for hand washing. The sink is hands-free or automatically operated. It is located near the exit door. If the laboratory is segregated into different laboratories, a sink is also available for hand washing in each zone. Additional sinks may be required as determined by the risk assessment					
4.3	The laboratory is designed so that it can be easily cleaned and decontaminated. Carpets and rugs are not permitted. Seams, floors, walls, and ceiling surfaces are sealed. Spaces around doors and ventilation openings are capable of being sealed to facilitate space decontamination.					
4.4	Floors are slip resistant, impervious to liquids, and resistant to chemicals. Consideration is given to the installation of seamless, sealed, resilient or poured floors, with integral cove bases.					
4.5	Walls are constructed to produce a sealed smooth finish that can be easily cleaned and decontaminated.					
4.6	Ceilings are constructed, sealed, and finished in the same general manner as walls.					
4.7	Decontamination of the entire laboratory is considered when there has been gross contamination of the space, significant changes in laboratory usage, for major renovations, or maintenance shut downs. Selection of the appropriate materials and methods is used to decontaminate the laboratory must be based on the risk assessment.					
4.8	Laboratory furniture is capable of supporting anticipated loads and uses. Spaces between benches, cabinets, and equipment are accessible for cleaning.					

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4.9	Bench tops are impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals.					
4.10	Chairs used in laboratory work are covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant.					
4.11	All windows in the laboratory are sealed.					
4.12	BSCs are installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs are located away from doors, heavily traveled laboratory areas, and other possible airflow disruptions.					
4.13	Vacuum lines are protected with HEPA filters, or their equivalent. Filters are replaced as needed. Liquid disinfectant traps may be required.					
4.14	An eyewash station is readily available in the laboratory.					
4.15	A ducted air ventilation system is required. This system provides sustained directional airflow by drawing air into the laboratory from “clean” areas toward “potentially contaminated” areas. The laboratory is designed such that under failure conditions the airflow will not be reversed.					
4.16	Laboratory personnel are able to verify directional airflow. A visual monitoring device, which confirms directional airflow, is provided at the laboratory entry. Audible alarms are considered to notify personnel of air flow disruption.					
4.17	The laboratory exhaust air does not re-circulate to any other area of the building.					
4.18	The laboratory building exhaust air is dispersed away from occupied areas and from building air intake locations or the exhaust air is HEPA filtered.					
4.19	HEPA filter housings have gas-tight isolation dampers, decontamination ports, and/or bag-in/bag-out (with appropriate decontamination procedures) capability. The HEPA filter housing allows for leak testing of each filter and assembly. The filters and the housing are certified at least annually.					
4.20	HEPA filtered exhaust air from a Class II BSC can be safely re-circulated into the laboratory environment if the cabinet is tested and certified at least annually and operated according to manufacturer’s recommendations. BSCs can also be connected to the laboratory exhaust system by either a thimble (canopy) connection or directly exhausted to the outside through a hard connection. Provisions to assure proper safety cabinet performance and air system operation are verified. BSCs are certified at least annually to assure correct performance. Class III BSCs are directly (hard) connected up through the second exhaust HEPA filter of the cabinet. Supply air is provided in such a manner that prevents positive pressurization of the cabinet.					
4.21	A method for decontaminating all laboratory wastes is available in the facility, preferably within the laboratory (e.g., autoclave, chemical disinfection, or other validated decontamination method).					

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4.22	Equipment that may produce infectious aerosols is contained in primary barrier devices that exhaust air through HEPA filtration or other equivalent technology before being discharged into the laboratory. These HEPA filters are tested and/or replaced at least annually.					
4.23	Enhanced environmental and personal protection may be required by the agent summary statement, risk assessment, or applicable local, state, or federal regulations. These laboratory enhancements may include, for example, one or more of the following: an anteroom for clean storage of equipment and supplies with dress-in, shower-out capabilities; gas tight dampers to facilitate laboratory isolation; final HEPA filtration of the laboratory exhaust air; laboratory effluent decontamination; and advanced access control devices, such as biometrics.					
4.24	The BSL-3 facility design, operational parameters, and procedures are verified and documented prior to operation. Facilities are re-verified and documented at least annually.					
	SECTION C: RECOMBINANT DNA – NIH GUIDELINES * *The questions in this section are based on Appendix G-II-C: Biosafety Level 3 (BL3) in the May 2011 publication of the NIH Guidelines for Research Involving Recombinant DNA Molecules.* * *This section applies to BSL-3 facilities that are conducting recombinant DNA research.*					
1.0	**STANDARD MICROBIOLOGICAL PRACTICES**					
1.1	Work surfaces are decontaminated at least once a day and after any spill of viable material.					
1.2	All contaminated liquid or solid wastes are decontaminated before disposal.					
1.3	Mechanical pipetting devices are used; mouth pipetting is prohibited.					
1.4	Eating, drinking, smoking, storing food, and applying cosmetics are not permitted in the work area.					
1.5	Persons wash their hands after handling materials involving organisms containing recombinant DNA molecules and handling animals, and when exiting the laboratory.					
1.6	All procedures are performed carefully to minimize the creation of aerosols.					
1.7	Persons under 16 years of age are prohibited from entering the laboratory.					
1.8	If experiments involving other organisms which require lower levels of containment are to be conducted in the same laboratory concurrently with experiments requiring BL3 level physical containment, are conducted in accordance with all BL3 level laboratory practices.					
2.0	**SPECIAL PRACTICES**					
2.1	Laboratory doors are kept closed when experiments are in progress.					
2.2	Contaminated materials that are to be decontaminated at a site away from the laboratory are placed in a durable, leak-proof container which is closed before being removed from the laboratory.					

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2.3	The Principal Investigator controls access to the laboratory and restricts access to persons whose presence is required for program or support purposes. The Principal Investigator has the final responsibility for assessing each circumstance and determining who may enter or work in the laboratory.					
2.4	The Principal Investigator establishes policies and procedures whereby only persons who have been advised of the potential biohazard, who meet any specific entry requirements (e.g., immunization), and who comply with all entry and exit procedures entering the laboratory or animal rooms.					
2.5	When organisms containing recombinant DNA molecules or experimental animals are present in the laboratory or containment module, a hazard warning sign incorporating the universal biosafety symbol is posted on all laboratory and animal room access doors. The hazard warning sign identifies the agent, lists the name and telephone number of the Principal Investigator or other responsible person(s), and indicates any special requirements for entering the laboratory such as the need for immunizations, respirators, or other personal protective measures.					
2.6	All activities involving organisms containing recombinant DNA molecules are conducted in biological safety cabinets or other physical containment devices within the containment module. No work in open vessels is conducted on the open bench.					
2.7	The work surfaces of biological safety cabinets and other containment equipment are decontaminated when work with organisms containing recombinant DNA molecules is finished. Plastic-backed paper toweling used on non-perforated work surfaces within biological safety cabinets facilitates clean-up.					
2.8	An insect and rodent program is in effect.					
2.9	Laboratory clothing that protects street clothing (e.g., solid front or wrap-around gowns, scrub suits, coveralls) is worn in the laboratory. Laboratory clothing is not worn outside the laboratory, and it is decontaminated prior to laundering or disposal.					
2.10	Special care is taken to avoid skin contamination with contaminated materials; gloves are worn when handling infected animals and when skin contact with infectious materials is unavoidable.					
2.11	Molded surgical masks or respirators are worn in rooms containing experimental animals.					
2.12	Animals and plants not related to the work being conducted are not permitted in the laboratory.					
2.13	Laboratory animals held in a BL3 area shall be housed in partial-containment caging systems, such as Horsfall units (see Appendix G-III-K, *Footnotes and References of Appendix G*), open cages placed in ventilated enclosures, solid-wall and -bottom cages covered by filter bonnets or solid-wall and -bottom cages placed on holding racks					

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	equipped with ultraviolet in radiation lamps and reflectors. Conventional caging systems may be used provided that all personnel wear appropriate personal protective devices. These protective devices shall include at a minimum wrap-around gowns, head covers, gloves, shoe covers, and respirators. All personnel shall shower on exit from areas where these devices are required.					
2.14	All wastes from laboratories and animal rooms are appropriately decontaminated before disposal.					
2.15	Vacuum lines are protected with high efficiency particulate air/HEPA filters and liquid disinfectant traps.					
2.16	Hypodermic needles and syringes are used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles. Only needle locking syringes or disposable syringe-needle units (i.e., needle is integral to the syringe) are used for the injection or aspiration of fluids containing organisms that contain recombinant DNA molecules. Extreme caution is used when handling needles and syringes to avoid autoinoculation and the generation of aerosols during use and disposal. Needles are not be bent, sheared, replaced in the needle sheath or guard, or removed from the syringe following use. The needle and syringe are promptly placed in a puncture-resistant container and decontaminated, preferably by autoclaving, before discard or reuse.					
2.17	Spills and accidents which result in overt or potential exposures to organisms containing recombinant DNA molecules are immediately reported to the Biological Safety Officer, Institutional Biosafety Committee, and NIH/OBA. Reports to NIH/OBA shall be sent to the Office of Biotechnology Activities, National Institutes of Health, 6705 Rockledge Drive, Suite 750, MSC 7985, Bethesda, MD 20892-7985 (20817 for non-USPS mail), 301-496-9838, 301-496-9839 (fax). Appropriate medical evaluation, surveillance, and treatment are provided and written records are maintained.					
2.18	Baseline serum samples for all laboratory and other at-risk personnel are collected and stored. Additional serum specimens may be collected periodically depending on the agents handled or the function of the laboratory.					
2.19	A biosafety manual is prepared or adopted. Personnel are advised of special hazards and are required to read and follow the instructions on practices and procedures.					
3.0	**CONTAINMENT EQUIPMENT**					
3.1	Biological safety cabinets (Class I, II, or III) (see Appendix G-III-L, *Footnotes and References of Appendix G*) or other appropriate combinations of personal protective or physical containment devices (e.g., special protective clothing, masks, gloves, respirators, centrifuge safety cups, sealed centrifuge rotors, and containment caging for animals) are used for all activities with organisms containing recombinant DNA molecules which pose a threat of aerosol					

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	exposure. These include: manipulation of cultures and of those clinical or environmental materials which may be a source of aerosols; the aerosol challenge of experimental animals; the harvesting of infected tissues or fluids from experimental animals and embryonate eggs; and the necropsy of experimental animals.					
4.0	**LABORATORY FACILITIES**					
4.1	The laboratory is separated from areas which are open to unrestricted traffic flow within the building. Passage through two sets of doors is the basic requirement for entry into the laboratory from access corridors or other contiguous areas. Physical separation of the high containment laboratory from access corridors or other laboratories or activities may be provided by a double-doored clothes change room (showers may be included), airlock, or other access facility which requires passage through two sets of doors before entering the laboratory.					
4.2	The interior surfaces of walls, floors, and ceilings are water resistant so that they can be easily cleaned. Penetrations in these surfaces are sealed or capable of being sealed to facilitate decontaminating the area.					
4.3	Bench tops are impervious to water and resistant to acids, alkalis, organic solvents, and moderate heat.					
4.4	Laboratory furniture is sturdy and spaces between benches, cabinets, and equipment are accessible for cleaning.					
4.5	Each laboratory contains a sink for hand washing. The sink is foot, elbow, or automatically operated and is located near the laboratory exit door.					
4.6	Windows in the laboratory are closed and sealed.					
4.7	Access doors to the laboratory or containment module are self-closing.					
4.8	An autoclave for decontaminating laboratory wastes is available preferably within the laboratory.					
4.9	A ducted exhaust air ventilation system is provided. This system creates directional airflow that draws air into the laboratory through the entry area. The exhaust air is not recirculated to any other area of the building, is discharged to the outside, and is dispersed away from the occupied areas and air intakes. Personnel shall verify that the direction of the airflow (into the laboratory) is proper. The exhaust air from the laboratory room may be discharged to the outside without being filtered or otherwise treated.					
4.10	The high efficiency particulate air/HEPA filtered exhaust air from Class I or Class II biological safety cabinets is discharged directly to the outside or through the building exhaust system. Exhaust air from Class I or II biological safety cabinets may be recirculated within the laboratory if the cabinet is tested and certified at least every twelve months. If the HEPA-filtered exhaust air from Class I or II biological safety cabinets is to be discharged to the outside					

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	through the building exhaust air system, it is connected to this system in a manner (e.g., thimble unit connection (see Appendix G-III-L, *Footnotes and References of Appendix G*)) that avoids any interference with the air balance of the cabinets or building exhaust system.					