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# **Acute Toxins**

* Are the labs Acute Toxins (of biological origin) practices compliant?
	+ Is the inventory accurate and arranged in such a way that it is easy to track?
	+ Is the inventory kept in a secure location (i.e. locked drawer) and is the key under the control of the PI or lab manager?
	+ Is the toxin properly secured?
	+ Is the toxin properly inactivated and stored in the designated hazardous waste satellite accumulation area until pickup?
	+ Are Acute Toxins handled either in a Biosafety Cabinet or in a Fume Hood?
	+ Are safe sharps practices in use for manipulating Acute Toxins?
	+ Is an SDS sheet available for each toxin?
	+ Are the Acute Toxin SOPs completed and reviewed/revised annually?
	+ Are non-essential personnel excluded from the work area when toxins are in use and is the “Toxin in Use” sign posted to warn/exclude personnel not directly involved in the work?

# **Autoclaves**

* Are autoclaves used and maintained properly?
	+ Are autoclaves used to inactivate biological wastes tested for efficacy monthly?
	+ Is an autoclave use log maintained?
	+ Are stainless steel (recommended) or polypropylene or polycarbonate (not high density polyethylene) pans used to autoclave biowaste?
	+ Are temperature resistant red bags being utilized for autoclaving?
	+ Are autoclave(s) used for sterilization (not disinfection) tested for efficacy?

# **Biological/Biomedical Waste**

* Is biological/biomedical waste collection and specimen/agent transport being handled properly?
	+ Are serological pipettes discarded in the biohazard bag in a manner that decreases the risk for puncture of the bag and/or box?
	+ Is infectious/potentially infectious waste or recombinant DNA waste that is being generated in the biosafety cabinets discarded into a container that can be disinfected?
	+ Are biological/biomedical waste container(s) overfilled?
	+ Are biological/biomedical waste box(es) lined with the correct bag?
	+ Is biological/biomedical waste awaiting autoclaving placed within a leak-proof secondary container (i.e. not found sitting directly on the floor)?
	+ Are biohazard waste container(s) containing covered?
	+ Are pipette tips discarded properly (not haphazardly into biomedical waste bags or into regular trash)?
	+ Are biohazardous waste bags/box free of chemically contaminated pipette tips and/or gloves?
	+ Are biohazardous waste bags free of liquid waste?
	+ Are biohazardous waste bags free of regular trash (wrappers, bottles, etc.)?
* Is transport of infectious biomedical / biological waste and/or rDNA decontamination compliant?
	+ Are materials to be decontaminated outside of the immediate laboratory placed in a durable, leak-proof container and secured for transport?
	+ Are waste materials to be removed from the facility packed in accordance with applicable local, state, and federal regulations?

# **Biosafety Cabinets**

* Are Biosafety Cabinets (BSCs) being used properly?
	+ Are Biosafety cabinet(s) (BSCs) neat (not cluttered with excess supplies)?
	+ Are Bunsen Burners utilized in BSC(s)?
	+ Is UV light use utilized in BSC(s)?
	+ Are the front grills of BSC(s) clear (unblocked)?
	+ Are lab doors closed (not propped open) while BSC(s) are in use?
* Are BSCs located within the lab in such a way as to not compromise function?
	+ Are BSC(s) located away from entrances?
	+ Are BSC(s) located away from HVAC supply?
* Are BSC(s) certified annually?

# **Chemical Fume Hoods**

* Is fume hood compliant?
	+ Is storage of items in chemical fume hoods kept to a minimum?

# **Chemical Safety**

* Is an appropriate chemical spill kit available?
* Are chemicals stored safely?
	+ Are flammable solvents only stored in approved cabinets?
	+ Are liquids stored in secondary containers (not stored directly on the floor)?
* Are liquid nitrogen storage tanks in a well-ventilated area?
* Are all containers of chemicals properly labeled in the lab?
	+ Are all chemicals labeled (no unlabeled containers)?
* Are chemicals stored by compatibility?
* Are cold rooms being used properly?

# **Compressed Gases**

* Are cylinders with no regulators capped (even when empty)?
* Are contents of cylinders clearly labeled?
* Are compressed gas cylinders adequately secured (even when empty)?

# **Documentation**

* Is the lab's BioRAFT registration complete and current?
* Is the lab’s BioRAFT hazard assessment current?
* Is the lab’s inventory compliant?
	+ Does the lab have a current chemical inventory?
	+ Does the lab have a current biological inventory?
	+ Does the lab have equipment requiring annual certification or may be determined as high risk registered in BioRAFT?
* Do EHS registered project(s) accurately reflect ongoing research activities?
* Does the lab have a current Laboratory Safety Manual readily accessible?
* Does everyone in the lab have access to the SDSs for all chemicals used in the lab?
* Does the lab have a Biological Safety Manual readily accessible?
* Does the lab maintain SOPs that incorporate health and safety for equipment usage, waste disposal and spills?
* Do all lab personnel have access to all SOPs?

# **Electrical Safety**

* Is the lab only using extension cords temporarily?
* Are extension cords manufactured commercially (not shop made)?
* Are electrical cords undamaged (not frayed)?
* Is the lab free of electrical hazards?
* Do extension cords, power strips, and surge protectors have long enough cords (not inter-connected or Daisy Chained)?
* Are electrical panel covers secure? Are all unused openings in electrical enclosures and fittings appropriately plugged or covered?
* Are power strips UL listed?
* Are all electrical cords routed properly (not running through doors, walls or partitions, under rugs/matts, or above drop ceilings)?
* Are all power strips either mechanically affixed or resting on a flat surface?

# **Emergency**

* Is a fully stocked First-Aid kit compliant?
	+ Is a first aid kit in evidence? (check no if they need a new first aid kit)
* Is the overhead emergency shower(s) compliant?
	+ Is overhead emergency shower(s) working properly?
	+ Is overhead emergency shower(s) tested regularly?
	+ Is overhead emergency shower(s) unobstructed?
* Is the emergency eye wash station(s) compliant?
	+ Is eyewash station working properly?
	+ Is eyewash tested regularly?
	+ Does eyewash station have dust covers?
	+ Is eyewash unobstructed?
* Per the PI or PI’s designee, is lab staff trained in the lab's emergency procedures?
* Are biological spill kits and spill management procedures compliant?
	+ Is a Biological Spill kit available and fully stocked?
	+ Is a biological spill SOP readily available?
	+ Are the spill and incident management procedures posted?
	+ Is the bleach in spill kit unexpired?
	+ Are infectious materials spills reported and evaluated?
	+ Is the biological spill kit kept segregated (in a separate container) from any chemical spill kits?
* If any exposure incidents occurred, were they properly reported/investigated?

# **Equipment**

* Is laboratory equipment clean?
* Is laboratory equipment safely operated and maintained in accordance with manufacturer instructions?
* Are vacuum lines protected with liquid disinfectant traps and HEPA filters/ Is the HEPA filter changed as needed?
* Are centrifuge rotors/buckets used for infectious agents sealed? (check for gaskets to be present and not cracked)
* Are continuous flow centrifuges or other equipment that may produce aerosols contained in devices that exhaust air through HEPA filters before discharge into the laboratory?

# **Facility Design**

* Are Laboratory doors self-closing and lockable?
* Is there a hand-washing sink available prior to exit?
* Is the laboratory floor easily cleanable?
* Are cabinets and bench surfaces lab-grade material (impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals)?
* Is access to the laboratory controlled?
* Is there negative airflow for the lab/facility?
* Does the lab have windows that open?
	+ Are windows screened and/or screens intact and free of openings?

# **Fire Safety**

* Are fire extinguishers compliant?
	+ Is a Fire Extinguisher located near or in the lab?
* Are flammable liquids stored in approved containers?
* Is no more than 10 gallons of flammable liquids stored in the open (outside of a flammables cabinet or safety can)?
* Are vents on flammable storage cabinets sealed?
* Are sprinkler heads clear (i.e. at least 18 inch clearance)?
* If the lab has any propane gas, is the quantity less than 2x 1lb cylinders loose in the lab with another 2x 1lb cylinders in a flammables cabinet?
* Are all ceiling tiles in place in the lab?

# **General Safety**

* Is lab space being utilized safely?
* Are workspaces un-crowded?
* Are benches and shelves overloaded?
* Are chairs appropriate for laboratory environment?
	+ Are chairs non-porous and cleanable?
* Is food for human consumption stored in lab fridges/freezers?
* Are walkways clear of obstructions?
* Is there evidence/observation of food consumption or storage, smoking, drinking, handling of contacts, or applying cosmetics within the laboratory work area?
* Are work surfaces and benches free of clutter to reduce risk of spills and accidents?
* Per the PI or PI’s designee, are lab rooms all closed and locked when no personnel are in the lab?
* Are mechanical pipetting devices used?

# **Hazardous Waste**

* Is waste properly segregated?
* Are waste containers in good condition?
* Are hazardous waste containers labeled using the updated format?
* Per the PI or PI’s designee, is hazardous waste being properly disposed of through EH&S (not poured down sinks)?

# **Pest Management**

* Is an effective integrated pest management program in place?

# **Personal Protective Equipment**

* Is appropriate PPE available (stored clean and in good repair) and worn for the activity being conducted?
* Is PPE stored in a manner to prevent damage or contamination?
* Are full coverage shoes with good sole grips worn in the lab?
* Are cryogenic materials handled with the proper PPE?
* Is the lab using the appropriate gloves for their work (have they consulted the glove compatibility reference chart)?
* Are gloves being used and disposed of properly?
	+ Are gloves being removed and hands being washed when work with hazardous materials has been completed and before leaving the laboratory?
	+ Are gloves being changed when contaminated, integrity has been compromised, or when otherwise necessary?
* Are respirator required for any designated activities?
	+ Have wearers been trained, fit tested and enrolled in the respiratory protection program?
* Are laser specific safety glasses or goggles available if the lab is working with lasers?
* Is hearing protection available for high noise areas (e.g. sonicators, grinders)?
* Are protective laboratory coats, gowns, or uniforms worn to prevent contamination of personal clothing and are they removed before leaving for non-laboratory areas (i.e. cafeteria, library, administrative offices)?
* Is protective clothing disposed of appropriately, or laundered at the institution? Is laboratory clothing prohibited from being taken home?
* Are eye and face protection (goggles, mask, face shield, or other splatter guard) used for anticipated splashes or sprays of infectious or other hazardous materials when the materials must be handled outside the containment device?
	+ Are lab personnel aware that contact lenses should not be worn in the labs, and that if contact lenses are worn they must be accompanied by goggles?

# **Practices**

* Are personnel washing their hands after removing gloves and before exiting the laboratory?
* Are soap and paper towels available at hand wash station?
* Are non-research animals or plants prohibited in the laboratory?
* Are procedures performed to minimize the creation of splashes and/or aerosols?
* Are laboratory equipment and work surfaces decontaminated routinely, after work with infectious materials?
* Is bleach or an appropriate disinfectant (not ethanol) being used to disinfect surfaces?
* Is bleach being used properly for disinfection?
	+ Is there sufficient bleach in the BSC aspirator flask?
	+ If aspirator flasks are used over the course of several days, is there adequate chlorine to disinfect the waste?
	+ Is bleach properly diluted and made fresh each day?
	+ Is bleach expired?

# **Sharps**

* Are sharps handled and disposed of properly?
	+ Are sharps being used with infectious material/rDNA?
	+ Are sharps generated in the BSC being collected into sharps containers also located within BSC?
	+ Are sharps segregated from non-sharps for disposal?
	+ Are sharps containers overfilled?
	+ Are containers of contaminated needles, sharp equipment, and broken glass decontaminated before disposal?
	+ Are sharps containers disposed of according to any local, state, and federal regulations?
	+ Are sharps containers conveniently located to the work being performed?
	+ Is broken glassware being handled properly (removed using mechanical means such as a brush and dustpan, tongs, or forceps)?
	+ Is plastic ware substituted for glassware whenever possible?
	+ Are needles bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal?

# **Signs and Postings**

* Are the Lab Hazard signs with Emergency Call list posted at the lab entrance?
	+ Does the Door Sign have a current emergency call list?
	+ Does the emergency call list have two names with afterhours phone numbers?
* Is warning signage posted to alert entrants what PPE is required?
* Is Laboratory (Biosafety) Signage compliant?
	+ Does the sign contain the BIOHAZARD symbol with the appropriate biosafety level written in?
	+ Does all laboratory equipment have the appropriate hazard stickers?

# **Training**

* Per the PI or PI’s designee, do lab personnel receive appropriate training regarding:
	+ the potential hazards associated with the work involved?
	+ special microbial practices and manipulations of infectious agents?
	+ necessary precautions to prevent exposures?
	+ exposure evaluation procedures?
	+ Does the PI/Director ensure that students/lab staff demonstrate proficiency prior to being allowed to work with infectious agents?
* Are records for biosafety training available and current?
	+ Are personnel receiving lab/facility-specific training annually and/or when changes in procedures occur?
	+ If the lab staff ships biological materials or dangerous goods, is training certification for shipping biological materials/dangerous goods current?