Laboratory Biosafety Competency Assessment Form

Laboratory Section/Department:				
Laboratory Personnel Name:				
Type of Employee:	☐ New	☐ Established		
Type of Assessment:	☐ Initial	☐ Six-month	☐ Annual	☐ Remedial

Aspect of Competency Assessed	Date	Evaluator	Reference/Additional Information
1. Potential Hazards - Biologic Materials			
1. Describe the concept of biohazardous materials Including: - Describe potentially infectious or contaminated materials, containers, equipment, or surfaces in the section/department			
2a. Describe association of infectious agents and toxins to disease			
2c. Describe the principal exposure routes of laboratory-acquired infections - Routes include - • inhalation, • percutaneous exposure, • mucosal membrane exposure, • ingestion - Exposure can occur during - • specimen receipt, • specimen handling, • testing process, • specimen storage/disposal, • waste handling, • specimen shipment from the lab			
3. Utilize control measures and work practices with biologic materials Including: - Washes hands with soap and water - • after removing gloves, • before leaving laboratory, and • before touching bare skin (especially eyes/nose/mouth/face/hair) - Handwashing includes - • fingertips, • thumbs, • back of hands, • palm of hands, and • between fingers - Turns off lab sink by turning the faucet knob with paper towel OR uses hands-free sink - When centrifuging agents that are infectious by the inhalation route and have not been inactivated, use sealed rotor buckets or sealed rotors and open rotor bucket/rotor in BSC after centrifugation			
3a. Describe personal protective equipment (PPE) that should be used when handling biologic materials			
3d. Recognize when biologic materials should be considered for transfer to a different type of hazard control (e.g., should go from BSL-2 to BSL-3 facility and practices, or transfer from bench to the biological safety cabinet) Including: - Identification of a select agent - Potential BT agent incorrectly received in another department - Use BSC for activities that may generate aerosols of agents that are infectious by the inhalation route and have not been inactivated - aerosol generating procedure is any procedure that imparts energy to a microbial suspension, including • pipetting, • pouring, • mixing with a pipette, • mixing with a vortex mixer, • blending, • grinding, • homogenizing, • sonicating (using an			

ultrasonic device), • using an oscillating saw, • using a fluid-aspirating hose, • using a plate washer, • flaming loops or slides			
3e. Demonstrate response procedure after suspected exposure. Including: - Usage of eyewash or washing of affected area as necessary - Removal of contaminated PPE - Notification of supervisor			
1. Potential Hazards - Chemical Materials			
1. Identify chemicals used in the laboratory Including: - Flammables - Guanidine salts (Qiagen and Roche nucleic acid extraction kits) - TRIzol - Ethidium bromide - Polyacrylamide			
2. Describe hazards associated with chemicals used in laboratory procedures Including: - Flammables - explosion - Guanidine salts (Qiagen and Roche nucleic acid extraction kits) - reaction with bleach - TRIzol - reaction with bleach - Ethidium bromide - potential carcinogen or teratogen - Polyacrylamide - potential carcinogen			
3. Recognize control measures and work practices to be used when working with chemicals Including: - Splash to eye - rinse with eye wash for at least 15 minutes - Guanidine salts (Qiagen and Roche nucleic acid extraction kits) - don't mix with bleach - TRIzol - don't mix with bleach (use Conflikt) - Ethidium bromide - wear nitrile gloves, wash hands immediately if exposed - Polyacrylamide - wear gloves, wash hands immediately if exposed			
1. Potential Hazards - Physical Environment			
1a. Describe proper use and disposal of laboratory sharps Including: - Dispose of non-biohazardous sharps in cardboard sharps container; do not press down on or reach into container - Dispose of biohazardous sharps in biohazard sharps container; do not fill past fill line			
1c. Describe hazards associated with temperature extremes			
1f. Describe nonionizing radiation (e.g., UV light, lasers)			
2. Describe control measures and work practices to be used when physical hazards are present Including: - Wear lab coat and appropriate gloves for very cold and very hot items, including freezers, liquid nitrogen, autoclave interior, and recently autoclaved materials			
2. Hazard Controls - Decontamination and Laboratory Waste Management			
2. Describe laboratory waste procedures for biologic materials Including: - Virology: • place disposable, potentially infectious or contaminated materials in biohazard waste container/bag/tray, • add ~100 mL water to container/bag/tray if equivalent amount of			

liquid not already present, • autoclave, and • dispose of autoclaved trash in Stericycle gray bin - Serology/Environmental Microbiology/Microbiology/BioWatch: • place disposable, potentially infectious or contaminated materials in biohazard waste container/bag and • as necessary move container/bag to Stericycle gray bin OR • place directly in Stericycle gray bin - Rabies: Follow Rabies SOP for waste handling - BT: Follow BSL-3 Safety Manual guidelines			
3c. Describe proper use of any specific equipment (e.g., autoclave, vapor phase decontamination equipment) Including: - Virology/Rabies/BT: Autoclave - BT: vaporized hydrogen peroxide instrument			
3e. Describe routine surface decontamination procedures Including: - At the end of each procedure - At the end of each shift			
2. Hazard Controls - Engineering Controls — Equipment (Primary Barriers)			
2a. Demonstrate correct use of laboratory equipment with engineering controls to ensure safety Including: - Physical splash guards (including those in Serology and Microbiology as well as Virology clean boxes used for molecular assays) - BSC - • arrange items so that work can be done from clean to dirty, • perform work 4-6 inches from the inside edge of the grate or as far back as possible (perform procedures that generate aerosols toward the back of the BSC), • move arms directly in and directly out of the BSC (do not use sweeping side-to-side movements), • minimize movement near the BSC (including walking close behind and opening/closing doors), • do not use an open flame			
2c. Describe limitations of equipment with engineering controls to ensure laboratory safety Including: - Physical splash guards - • don't provide full protection with aerosols, • must be used consistently - BSC - • possible problem with HEPA filter, • poor practices can result in aerosol escape			
2e. Recognize when engineering controls for safety on laboratory equipment are compromised, malfunctioning, or nonfunctioning Including: - BSC - • airflow should be apparent, • reading on magnehelic gauge should be similar to the reading at last certification			
3. Describe procedures to immediately report compromised, malfunctioning, or nonfunctioning engineering controls on laboratory equipment Including: - Notify supervisor immediately			
4a. Describe preuse, use, and postuse protocols for laboratory equipment with engineering controls for safety Including: - Physical splash guards - moving into position before work - BSC - • ensuring alarm is switched on, • opening sash to certified height, • adjusting chair so bottom of sash is at the worker's armpit, • turning on blower, • letting run for 2-5 minutes			

before use, • (ideally) checking reading on magnehelic gauge and comparing to certified reading, • cleaning interior with appropriate disinfectant before use (and removing bleach after appropriate contact time if it is the disinfectant chosen), • loading with needed materials but not overloading, • disinfecting materials before removal, • cleaning interior with appropriate disinfectant after use (and removing bleach after appropriate contact time if it is the disinfectant chosen), • closing sash, • turning off blower, • turning on UV light, • turning off UV light after 1 hour			
2. Hazard Controls - Engineering Controls — Facility (Secondary Barriers) BSL-2 & BSL-3			
2. Recognize when facility engineering controls are compromised or not functioning properly Including: BSL-3 - warning lights, sounds, or ball indicate lack of directional airflow			
2a. List specific procedures that must cease or begin if facility engineering controls are not functioning properly Including: BSL-3 - stop work immediately if airflow problems arise			
2. Hazard Controls - Personal Protective Equipment (PPE) (Primary Barriers)			
1b. Describe safety practices to be used in conjunction with PPE Including: - Do not touch bare skin (especially eyes/nose/mouth/face/hair) when wearing gloves - Respirators - conduct user seal check for half-mask respirators before each use and flow check for PAPRs initially and as needed			
2. Describe specific PPE to be used for each laboratory procedure			
3. Describe respiratory protection program Including: - Half-mask tight-fitting facepiece respirator or PAPR used for appropriate tasks in BSL-3 - Medical evaluation initially (and annually depending upon health status) - Respiratory protection training initially and annually - Respirator fit testing initially and annually for users of tight-fitting facepiece respirators			
4a. Demonstrate donning (placement) and doffing (removal) sequence for PPE Including: - Proper removal of gloves (does not touch skin with potentially-contaminated exterior of gloves)			
4b. Describe limitations of PPE			
4c. Demonstrate cleaning, disinfection, and disposal procedures for PPE Including: - Lab coats - laundering or disposal, decontamination of overtly contaminated coats - Respirators - cleaning after use as described in BSL-3 Safety Manual			
5. Assess integrity and functionality of all PPE in use Including: - Checking gloves and other PPE for tears, cracks, and holes prior to use			
3. Administrative Controls - Guideline and Regulation Compliance			

4. Adhere to security requirements Including: - Only allow entry of visitors into lab areas during approved hours - BSL-3 - no piggybacking on entry, follow sign-in requirements for authorized users and guests, escort guests at all times			
4. Emergency Preparedness and Response - Emergencies and Incident Response			
2. Describe reporting requirements for emergencies and other incidents according to institutional plans and policies			
3c. Describe procedures for responding to spills or potential exposures Including: - Biological spills - • alert co-workers in vicinity of spill as well as supervisor, • don proper PPE including gloves and lab coat, • cover spill with absorbent material, • apply appropriate disinfectant to absorbent material, • allow for 30 minute contact time, • use any suitable device (not your hands) for collecting broken glass if present (tongs or forceps), • dispose of clean up materials in biohazard waste, • dispose of contaminated sharps in biohazardous sharps container, • remove PPE and dispose of in biohazard waste, • wash hands, and • document with incident report			
3d. Describe emergency evacuation routes and assembly areas			

List any observed deficiencies:

Additional training required and date(s) of training:

Laboratory Personnel Signature:	Date:
Supervisor Name (Print):	
Supervisor Signature:	Date:

The competencies in this assessment are based on Guidelines for Biosafety Laboratory Competency. (2011). Morbidity and Mortality Weekly Report (MMWR), 60(Supplement) (https://www.cdc.gov/mmwr/pdf/other/su6002.pdf).

The above named employee has been trained in and observed performing each skill. Competency was evaluated and deemed acceptable prior to performing each skill without direct supervision.