

University of California

Biosafety Level 3 (BSL-3) Laboratory
Training Requirements Standard
March 2021



Introduction

The University of California (UC) is home to some of the world's most advanced and pioneering biomedical science and clinical research. Consistently ranked among the leaders in the field of Infectious Disease research, the UC is often called upon to provide critical expertise in response to worldwide public health crises. Infectious Disease research involving highly pathogenic and primarily aerosol transmissible agents (i.e., Risk Group 3 agents) has the potential to present significant risk to individuals, the community, and the environment. Safe conduct of these research activities is dependent upon a robust high containment program including a comprehensive Biosafety Level 3 (BSL-3) training program. This UC BSL-3 Laboratory Training Standard outlines all required training program elements including biocontainment, biosafety, biosecurity, laboratory specific, agent specific, incident response and proficiency demonstration for all personnel requiring access to the BSL-3 laboratory.

Several federal and state agencies have published standards for BSL-3 training requirements. Development of the UC BSL-3 Laboratory Training Standard has incorporated recommendations from a number of these sources, including the following:

- Cal-OSHA Respiratory Protection Standard- Title 8 CCR; Section 5144
- Title 8 CCR Section 5191, Occupational Exposure to Hazardous Chemicals in Laboratories
- California Medical Waste Management Act- MWMA 2017 (H&S Code 117600-118360)
- CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th edition 2009
- NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines) 2019
- IATA Dangerous Goods Regulations, Sec. 3.6 (Class 6) & Sec. 3.9 (Class 9) Dry Ice
- Cal/OSHA Bloodborne Pathogens Standard - 8 CCR 5193
- Cal/OSHA Aerosol Transmissible Diseases Standard - 8 CCR 5199
- Cal/OSHA Ventilation Requirements for Biosafety Cabinet Standard - 8 CCR 5154.2
- Cal/OSHA Hazard Communication Standard - 8 CCR 5194

Application

The UC BSL-3 Laboratory Training Standard outlines the minimum UC requirements to be met by all personnel requiring access to BSL-3 and Animal Biosafety Level 3 (A/BSL-3) facilities. All campuses operating BSL-3 laboratories shall comply with this UC BSL-3 Training Standard. Each campus High Containment Laboratory Director (HCLD) will guide potential users through the training program. The HCLD will be responsible for ensuring completion of initial and annual refresher BSL-3 trainings for researchers, staff, support personnel, visitors and first responders. The HCLD must design, develop, and provide a campus BSL-3 training program and may incorporate other training programs including the UCI BSL-3 Biosafety Training Program. All training must be provided by a qualified trainer with sufficient education, knowledge and experience in biosafety, infectious diseases, and high containment safety. The BSL-3 laboratory basic training requirement may be provided by an approved training program (UCI BSL-3

Biosafety Training Program or equivalent) as recognized by the qualified trainer. Each campus must develop laboratory (site-specific) training content based on risk assessment and specific to the roles and responsibilities of each user. Campuses may supplement this Standard with additional training elements as risk assessments and/or program-specific elements dictate.

Campuses shall maintain written documentation of training completion. Documentation may be in the form of written quizzes, transcripts of online/computer-based training modules, training completion certificates, signed personnel training acknowledgment forms or similar records.

This Standard categorizes all personnel requiring access to the BSL-3 and A/BSL-3 labs into four groups based on their roles and responsibilities. For the purposes of this Standard, personnel groups are defined as laboratory researchers, support staff (animal care and facilities services), visitors and emergency first responders.

Note: Campuses operating specialized high-containment facilities such as BSL-3 Plant (BSL-3P), BSL-3 Agriculture (BSL-3Ag), or Arthropod Containment Level 3 (ACL-3) laboratories must follow this standard when applicable and may have additional training requirements to fulfill in order to comply with and address specific regulations and industry-standard best practices. Additionally, campuses must reference and comply with any applicable Federal regulatory requirements as outlined in programs such as the Federal Select Agent Program and/or Dual Use Research of Concern.

High containment personnel roles and responsibilities

Institutional Biosafety Committee (IBC)

The IBC is responsible for oversight of all research activities involving biohazardous materials on campus. The IBC is responsible for establishing, monitoring and enforcing policies and procedures to meet all applicable federal, state, local and institutional regulations and guidelines. In accordance with all applicable regulations and guidelines, the committee ensures adequate and appropriate training for Principal Investigators and all laboratory staff conducting research involving biohazardous materials.

High Containment Laboratory Oversight Group (HCLOG)

The HCLOG is responsible for providing advice, guidance, and leadership regarding biocontainment, biosafety and biosecurity oversight for all campus activities involving high containment laboratories including a validated training program. Each campus HCLOG is responsible for adoption and enforcement of this Standard.

High Containment Laboratory Director (HCLD)

The High Containment Laboratory Director (HCLD) is responsible for the oversight and provision of a validated training program in accordance with campus procedures. The HCLD is responsible for coordinating annual trainings and refreshers with all Principal Investigators and laboratory personnel as well as support facilities personnel, campus police, and local first responders. The HCLD is also responsible for instituting and

implementing a comprehensive training program for visitors and personnel requiring escorted laboratory access.

Principal Investigator (PI)

The Principal Investigator is responsible for ensuring that his or her laboratory staff receives all required training prior to initiating work in the BSL-3 laboratory.

Laboratory Researchers

Laboratory staff members with job duties requiring them to access to BSL-3 facilities. Researchers are responsible for the successful completion of all training requirements prior to gaining access to the BSL-3 laboratory.

Support Staff

Animal Care Personnel: Animal husbandry staff and veterinary support staff requiring facility access to perform job duties involving housekeeping, cage changing, animal welfare monitoring and provision of veterinary care.

Facility Services: Facilities personnel including HVAC engineers, electricians, plumbers, autoclave technicians, laboratory management staff and building automation engineers requiring facility access to perform required repairs, facility validations, preventative maintenance and housekeeping.

Visitors and Escorted Personnel

The following groups of individuals requiring short-term facility access for purposes not requiring direct access to biological agents:

- Guests or short-term visiting scientists touring the facility (not performing work in the lab)
- Facilities maintenance personnel with restricted access
- Outside contractors and service technicians who are not UC employees
- Laboratory inspectors (e.g. CDC FSAP)

Emergency First Responders

Emergency and incident response personnel including but not limited to medical responders, police and fire fighters.

Annual Refresher Training Requirement

Annual refresher training must be provided to all categories of BSL-3 personnel (researchers, facilities and emergency response) working in or supporting operations of campus BSL-3 laboratories. Annual refresher training must cover all aspects of the biocontainment, biosafety, biosecurity, laboratory specific, agent specific and incident response training requirements. The HCLD is responsible for providing the refresher training content.

Revisions to the Training Requirements Standard

An annual full review of the UC BSL-3 Training Requirements Standard shall be conducted by the UC High Containment Laboratory Directors Workgroup. Between full reviews, this Standard may be revised on an as needed basis to incorporate any new federal or state compliance regulations or guidance and to address any errors or deficiencies identified through continual use of this Standard. All identified corrections, clarifications, and revisions shall be submitted to the UC High Containment Laboratory Oversight Committee (HCLOC) for review and final approval.

Supporting Documents to the Training Requirements Standard

The Appendix section of this Standard provides four detailed checklist templates covering the minimum training requirements to be met by the four BSL-3 personnel groups. Campuses may choose to utilize the templates or may adapt them to meet campus-specific requirements.

- **Appendix A:** Initial Training Checklist
- **Appendix B:** Proficiency Checklist
- **Appendix C:** Refresher Training Checklist
- **Appendix D:** Visitor Training Checklist

Training Requirements Standard for Personnel Categories

1. Laboratory Researchers

Laboratory researchers must complete training to ensure awareness of the hazards and risks associated with A/BSL-3 and to be fully capable of working safely to protect themselves, the laboratory, the community and the environment from potential contamination. With guidance and strict oversight, researchers must be trained to perform all necessary experimental and laboratory safety protocols. After successful practical demonstration of proficiency, final approval and access to the facility shall be granted by the HCLD, the PI and if applicable, the laboratory manager.

Researcher Initial A/BSL-3 Training

Prior to entering the A/BSL-3 lab for hands-on training:

- Candidate must be listed on an active Biological Use Authorization (BUA) and if applicable, an active Animal Use Protocol (AUP).
- Candidate must complete all required EH&S training courses (e.g. Recombinant DNA template, Illness and Injury Prevention Program (IIPP), Blood Borne Pathogen (BBP), lab safety, radiation and laser safety if applicable, etc.).
- Candidate must enroll in the campus Occupational Health Program and receive medical clearance to work in A/BSL-3.

I. Complete A/BSL-3 laboratory basic training (UCI BSL-3 Training or in-house) or verify previous equivalency

II. Complete A/BSL-3 laboratory specific training

- A. Overview of A/BSL-3 facility (layout, HVAC system, emergency equipment, etc.)
- B. Read and understand A/BSL-3 Biosafety Manual
- C. Read and understand facility specific SOPs and policies
- D. Read and understand research project specific SOPs and BUAs
- E. Laboratory equipment training
- F. Agent inactivation policies (if applicable)
- G. Entry and exit procedures
- H. Waste management
 - I. Autoclave operation and maintenance
 - J. Incident response and reporting requirements
 - K. Removal of materials and equipment from A/BSL-3 facility
 - L. Policies and procedures for shipping/receiving materials and
 - M. Inventory control

III. Agent Specific training

- A. Agent-specific safety data sheet (e.g. Pathogen Safety Data Sheets)
- B. Signs & Symptoms
- C. Medical surveillance plan
- D. Animal handling procedures (if applicable)
- E. Aerosol transmissible disease standard

IV. Incident/Emergency Management training

- A. Spills inside/outside BSC
- B. General facility failures – HVAC and fire alarms
- C. Accidental Exposure Procedures
- D. Medical emergencies
- E. Incident response plan
- F. Security issues
- G. Natural disasters

V. Demonstrate Proficiency (see Appendix B)

- A. Entry and exit procedures – including donning and doffing PPE
- B. Biosafety cabinet (BSC) usage including set-up and clean-up
- C. Demonstrate a series of protocols (e.g., small spill cleanup, subculture, centrifugation, aliquoting, and project specific SOPs)
- D. Lab specific equipment procedure proficiency (e.g. centrifugation, homogenization, etc.)
- E. Waste management including autoclave
- F. Facility internal alarm response
- G. Animal (ABSL-3) specific procedures (if applicable)

Researcher Annual Refresher Training

- Ensure all required safety training courses are up to date (i.e. BBP, lab safety, IIPP, waste management, etc.)
- Ensure that annual medical clearance has been received

I. General With emphasis on any updates/revisions to the following topics:

- A. Review of BSL-3 facility updates (layout, HVAC engineering; location(s) of emergency equipment (shower, eyewash, spill kit)
- B. Review any support personnel updates (i.e. new Facilities Management personnel, EH&S personnel, new lab personnel if shared facility, etc.)
- C. Review of any updates to BSL-3 Biosafety Manual
- D. Review of any updates to facility specific SOPs
- E. Review of any updates to applicable project specific SOPs
- F. Review any applicable updates to medical surveillance
- G. Review any updates to entry & exit procedures

- H. Review any updates to laboratory operations
- I. Review any updates to incident reporting requirements
- J. Review any updates to policies & procedures to remove materials and equipment from BSL-3 facility
- K. Review policies & procedures for shipping materials

II. Review of any updates to Agent/Protocol/Research specific training

- A. Agent-specific safety data sheet (PSDS)
- B. Animal handling and procedures (if applicable)
- C. Key research SOPs

III. Review of any updates to Incident/Emergency Management Plan/SOPs

IV. Review Aerosol Transmissible Disease Standard

V. Demonstrate Proficiency (see Appendix B)

- A. Entry & exit procedures
- B. Donning & doffing of PPE
- C. BSC usage
 - i. Proper set up and disinfection of BSC
 - ii. Proper work techniques within BSC
 - iii. Research specific SOPs
- D. Waste management
 - i. Procedures for preparing biohazardous waste for decontamination prior to disposal/removal from BSL-3 facility
 - ii. Autoclave operation
 - iii. Liquid waste
- E. Emergency Management
 - i. Spill clean-up
 - ii. Emergency response (participation in live-action drills if possible)
- F. Animals procedure(s) (if applicable)

2. Support Staff

Animal Care Staff

Staff shall be provided all facility-specific SOP/Policy training. A/BSL-3 training shall include all applicable A/BSL-3 husbandry and animal care training. Specific protocols will be dependent upon the A/BSL-3 laboratory risk assessment.

Animal Care Staff Initial A/BSL3 Training

Prior to A/BSL-3 lab training:

- Candidate must complete all required safety training courses

- Candidate must enroll in the campus Occupational Health Program and receive medical clearance to work in A/BSL-3.

I. Complete A/BSL-3 laboratory specific training

General training:

- A. Overview of A/BSL-3 facility (layout, HVAC system, emergency equipment, etc.)
- B. Read and understand A/BSL-3 animal care specific SOPs and the Animal Biosafety Manual
- C. Introduction to ABSL3 safety practices, including:
 - The type of work is being done in the lab
 - Introduce staff to key researchers
 - Show main pieces of equipment handled in the facility (other than animal handling equipment- lab awareness)
- D. Entry and exiting procedures: donning/doffing PPE
- E. Health care and animal care issues specific to each research protocol:
 - Decontamination procedures
 - Waste management
 - Autoclave operation
 - Incident reporting requirements
- F. Cage changing procedures
- G. Policies and procedures for removal of items and equipment from A/BSL-3 facility

II. Agent Specific training

- A. Agent-specific safety data sheet (PSDS)
- B. A/BSL-3 animal handling procedures
- C. Aerosol transmissible disease standard (if applicable)
- D. Notification of animal welfare and laboratory issues

III. Incident/Emergency Management training

- A. Spills inside BSC
- B. Spills outside BSC from researchers
- C. Animal escapee
- D. General facility failures
- E. Critical system alarms (e.g. HVAC, freezer, etc.)
- F. Medical emergencies
- G. Security issues
- H. Natural disasters

IV. Demonstrate Proficiency (see Appendix B)

- A. Entry and exit procedures (e.g. donning and doffing)
- B. Biosafety cabinet (BSC) usage:
 - Preparation and decontamination of BSC

- Demonstrate protocols – animal handling
- Cage change in BSC – buddy system and single person
- C. Waste management
- D. Autoclave operations and safety
- E. Incident response
- F. Animal BSL-3 specific procedures

Animal Care Staff Annual Refresher Training

- **Ensure all required safety training courses are up to date (i.e. BBP, lab safety, IIPP, waste management, etc.)**
- **Ensure that annual ABSL3 medical clearance has been received**
- **Ensure completion of all BSL2 Laboratory Animal Care annual refresher trainings**

Complete Review of A/BSL-3 specific training

- A. Review of A/BSL-3 facility (layout, HVAC engineering, location(s) of emergency equipment (shower, eyewash, spill kit)
- B. Entry and exit procedures
- C. Review animal handling and procedures
 - Bringing animals into ABSL3
 - Cage change
 - Disposal of carcasses
 - Research specific SOPs
- D. Review waste management (when appropriate)
 - Autoclave operation for each type of biohazard waste
 - Chemical waste (if applicable)
- E. Review of any updates to Agent/Protocol/Research specific training
 - Agent-specific safety data sheet (PSDS)
 - General overview of research program goals
- F. Review of any updates to Incident/Emergency Management Plan
 - Case scenarios; incidents during business hours vs. after hours
 - Contact lists. Chain of command

Facilities Services Personnel with Unescorted Access Privileges

At the discretion of the HCLD, some facilities services personnel may obtain unaccompanied access privileges to the A/BSL-3 laboratories (e.g. during annual shutdown).

Facilities Services Personnel Initial Training

Prior to A/BSL-3 lab training:

- Candidate must complete all required safety training courses
- I. **Complete A/BSL-3 specific training**
 - A. Introduction to microbiological research and A/BSL-3 practices

- B. General information about A/BSL-3 facility (e.g. layout, HVAC system, etc.)
- C. Facility risk assessment and management
- D. Entry and exit procedures:
 - Donning and doffing
 - Decontamination of tools and equipment
- E. Personal protective equipment
- F. Incident response
- G. A/BSL-3 operations and maintenance
- H. Facility decontamination

II. **Proficiency demonstrations** – donning and doffing

III. **A/BSL-3 verification, inspection and preventive maintenance**

- A. Annual shutdown expectations
- B. List of procedures
- C. List of personnel involved and assigned roles
- D. Task schedule
- E. Reports

Facilities Services Personnel Annual Refresher Training

- **Ensure all required training courses are up to date**

Complete BSL-3 specific refresher training

- A. Review of BSL-3 facility (layout, HVAC engineering, location(s) of emergency equipment (shower, eyewash, spill kit)
- B. Review of any updates to facility specific SOPs
- C. Review of entry & exit procedures
- D. Review of any updates to Agent/Protocol/Research specific training
 - Agent-specific safety data sheet (PSDS)
 - General overview of research program goals
- E. Review of any updates to Incident/Emergency Management Plan/SOPs
- F. Proficiency Demonstrations
 - Entry & exit procedures
 - Donning & doffing of PPE
 - Emergency Management (participation in live-action drills if possible)

3. Visitors and Escorted Personnel

An authorized user must serve as a full-time escort to visitors and unapproved personnel. The designated escort must provide a brief, comprehensive training covering the infectious agents handled in the facility, biocontainment, emergency procedures and safety equipment. The visitor

must be advised of all pre-existing medical conditions that could increase the risk of disease or injury resulting from an exposure to biological agents accessed in the A/BSL-3 laboratory.

Visitors must sign an acknowledgement form confirming that they have received and understood the information provided in this training.

I. Site specific Training

- A. Facility layout
- B. Entry and exit procedures (e.g. Donning and doffing PPE)
- C. Agent Specific Training
 - Agent-specific safety data sheet (PSDS)
 - Signs, symptoms and pre-existing conditions risks
 - Contact information
- D. Emergency Procedures
 - Evacuation plan and emergency exit
 - Natural disaster response
 - Facility alarms (internal and external)
- E. Training verification and documentation

4. Emergency First Responders

The primary purpose of this training is to prepare campus and local first responders to safely provide the necessary support services in the event of an emergency involving the high containment facility and/or research personnel working therein. The HCLD is responsible for coordinating annual trainings and refreshers with campus and local first responders should be invited to participate.

I. A/BSL-3 Specific training

- A. General Overview of A/BSL-3 facility
- B. Number and location(s) of A/BSL-3 laboratories on campus
- C. Introduction to microbiological research and A/BSL-3 practices
- D. General A/BSL-3 practices and procedures awareness
- E. Biosecurity components (e.g. facility access)
- F. BSL3 key emergency contact personnel (SMEs)
- G. Laboratory personnel training requirements for CPR/AED, decontamination, others.

II. Drills

- A. Co-development of emergency management plan and SOPs
- B. Participation in table-top and live action drills to refine and validate plans/SOPs

Appendix A: Research personnel initial training checklist

| | | | | |
|--|-------------------------|----------------------|-------------------------|----------------------|
| User Name: | UC NetID: | | | |
| Principal Investigator: | Institution/Department: | | | |
| Designated Trainer/Mentor: | Facility: | | | |
| High Containment Laboratory Director: | | | | |
| SECTION I- PRELIMINARY TRAINING | Date Completed | User Initials | Trainer Initials | Verifier |
| Complete all EHS Trainings | | | | |
| Demonstrate proficiency working in BSL2 laboratory | | | | |
| Completion of animal care training (if applicable) | | | | |
| Complete A/BSL-3 Basic Training | | | | |
| Facility specific Documents | Date Completed | User Initials | Trainer Initials | HCLD Initials |
| Read and understand current version of the A/BSL3 Manual | | | | |
| Read and understand A/BSL3 Security Plan (if applicable) | | | | |
| Read and understand facility specific SOPs | | | | |
| Read and understand project specific SOPs | | | | |
| Agent specific Training | Date Completed | User Initials | Trainer Initials | HCLD Initials |
| Complete agent specific training for all agents worked with in the A/BSL3 facility. Agents used/stored in the facility: | | | | |
| Exposure Control Plan (ECP) for pathogen(s) | | | | |
| Occupational Health Review: | Date Completed | User Initials | Trainer Initials | HCLD Initials |
| UC Occupational Health Program | | | | |
| A/BSL-3 Medical clearance | | | | |

| Additional comments | | | | |
|---|----------------|---------------|------------------|---------------|
| | | | | |
| Section II will be carried out inside the A/BSL3 facility. The user will have to show an understanding and capability to carry out the following procedures. | | | | |
| SECTION II – FACILITY SPECIFIC TRAINING | | | | |
| Entering and Exiting | Date completed | User Initial | Trainer Initials | HCLD Initials |
| Entry Procedures (keycard, biometrics, etc.) | | | | |
| Knowledge of entry procedure (no piggybacking, log book, signs info) | | | | |
| Knowledge of airflow alarm operation (internal alarms) | | | | |
| PPE Training | Date completed | User Initial | Trainer Initials | HCLD Initials |
| Donning/Doffing of PPE | | | | |
| Respirator (N95, PAPR) preparation, use and maintenance | | | | |
| Exit Procedures | Date completed | User Initial | Trainer Initials | HCLD Initials |
| Handwashing | | | | |
| Exiting from the laboratory | | | | |
| Biosecurity | Date completed | User Initial | Trainer Initials | HCLD Initials |
| Physical Security (e.g Keycard access, Biometrics, etc.) | | | | |
| Personnel Security (suitability, workplace violence, etc.) | | | | |
| Inventory control and record keeping | | | | |
| Transport Security | | | | |
| Information Technology Security | | | | |
| Lab operations | Date Completed | User Initials | Trainer Initials | HCLD Initials |
| Biosafety cabinet set up and use | | | | |
| Minimize aerosol formation | | | | |
| Centrifugation procedure | | | | |

| | | | | |
|---|-----------------------|----------------------|-------------------------|----------------------|
| | | | | |
| Transportation of biohazardous material within the lab | | | | |
| Decontamination/Awareness of effective disinfectant against agents used | | | | |
| Proper PPE usage (Doffing/Decon secondary gloves, sleeves, etc.) | | | | |
| Waste Management | Date Completed | User Initials | Trainer Initials | HCLD Initials |
| Solid waste collection and preparation | | | | |
| Liquid waste management | | | | |
| Sharp waste management | | | | |
| Mixed waste management (chemical/bio/rad) | | | | |
| Animal waste management (Carcasses, bedding, cages) | | | | |
| Autoclave Operations (biological indicators, failures) | | | | |
| Retrieving waste post-autoclaving | | | | |
| Animal work (Project dependent) | Date completed | User Initial | Trainer Initials | HCLD Initials |
| Animal Husbandry procedures | | | | |
| Handling and restraining of animals | | | | |
| Animal inoculation procedures | | | | |
| Animal necropsy procedures | | | | |
| Animal tissue/cells inactivation (if applicable) | | | | |
| Incident Response Procedures | Date Completed | User Initials | Trainer Initials | HCLD Initials |
| Security breach response | | | | |
| Knowledge of facility exits (primary, secondary, etc.) | | | | |
| Spill cleanup inside BSC | | | | |
| Spill cleanup outside BSC | | | | |
| Medical event response (conscious vs unconscious) | | | | |

| | | | | |
|--|-----------------------|---------------------|-------------------------|----------------------|
| Fire Alarm response | | | | |
| BSC failure response | | | | |
| HVAC Alarm response | | | | |
| Response for Theft, Loss and Release and Inventory Discrepancies (if applicable) | | | | |
| Incident reporting requirement | | | | |
| Recovery Plan (Continuity of Operations) | | | | |
| Select Agents & Toxins Training (if applicable) | Date completed | User Initial | Trainer Initials | HCLD Initials |
| Biosafety plan | | | | |
| Biosecurity plan (refer to above section) | | | | |
| Incident response plan | | | | |
| Inventory control | | | | |
| Biocontainment | | | | |
| Security risk assessment (SRA) | | | | |
| Specific work related | | | | |
| Tier 1 BSAT | | | | |
| Personnel suitability assessment | | | | |
| Insider threat awareness | | | | |

SECTION III – ACCESS APPROVAL

This user was given full, unescorted access to the A/BSL3 facility on _____ (Date). This access is approved by the Principal Investigator, High Containment Laboratory Director and the Lab Manager and will expire one year from this approval date. Expiration date _____

| | |
|---|--|
| <hr/> <p>Principal Investigator Name</p> | <hr/> <p>Principle Investigator Signature</p> |
| <hr/> <p>High Containment Lab Director Name</p> | <hr/> <p>High Containment Lab Director Signature</p> |
| <hr/> <p>Lab Manager Name</p> | <hr/> <p>Lab Manger Signature</p> |

The training documentation will be maintained by the Lab Manager and the High Containment Lab Director.

Appendix B: Biosafety Training Practical Proficiency Demonstration

Personal Protective Equipment (PPE)

- Proper glove doffing technique
- Donning and doffing SOPs

Biosafety Cabinets (BSC)

- Prepping BSC before work
- Materials setup in BSC for workflow
- BSC procedures to minimize aerosol generation or airflow disruption
- Decontamination of BSC at conclusion of work

Waste Management

- Proper waste handling to remove from BSC
- Proper transport of waste to autoclave
- Proper spill cleanup procedures

Emergency Management

- Evacuation of non-ambulatory person to hand over to first responders

Appendix C: Annual refresher training checklist for laboratory personnel

| | |
|-------------------------|-------------------------|
| User Name: | UC NetID: |
| Principal Investigator: | Institution/Department: |
| Designated Mentor: | Facility: |
| Designated Trainer: | |

| SECTION I- General safety training | Date Completed | User Initials | PI Initials | Trainer Initials |
|--|----------------|---------------|-------------|------------------|
| Current all UC EHS Training | | | | |
| Read and understand facility specific SOPs | | | | |
| Read and understand project specific SOPs | | | | |
| ABSL3 Security Plan | | | | |
| Complete agent specific training for all agents worked with in the BSL3 facility. Agents used/stored in the facility: | | | | |
| Safety data sheet of agents | | | | |
| Symptoms associated with infection | | | | |
| Occupational Health Review: | | | | |
| Medical Surveillance | | | | |
| UC Occupational Health Program | | | | |
| Understanding of Post exposure procedure | | | | |
| Understanding of Symptoms without exposure procedure | | | | |
| Additional comments | | | | |
| | | | | |

Section II will be carried out inside the A/BSL3 facility. The user will have to show an understanding and capability to carry out the following procedures.

| SECTION II – FACILITY SPECIFIC TRAINING | Pass/ Fail | Date completed | User Initials | PI Initials | Trainer Initials |
|---|-----------------------|---------------------------|--------------------------|------------------------|-----------------------------|
| Entry Procedure | | | | | |
| Knowledge of entry procedure | | | | | |
| Knowledge of airflow alarm operation | | | | | |
| PPE Training | | | | | |
| Donning/Doffing of PPE | | | | | |
| PAPR preparation, use and maintenance | | | | | |
| Biosecurity | | | | | |
| Physical security (e.g. biometrics, keycards, etc.) | | | | | |
| Personnel security (workplace violence, insider threat awareness, etc.) | | | | | |
| Inventory control and record keeping | | | | | |
| Transport Security | | | | | |
| IT security | | | | | |
| Facility specific work practices | | | | | |
| Minimize aerosol formation | | | | | |
| Centrifugation procedure | | | | | |
| Transportation of biohazardous material within the lab | | | | | |
| Autoclave use | | | | | |
| Decontamination/Awareness of effective disinfectant against agents used | | | | | |
| Proper PPE usage (Donning/Doffing sleeves/secondary gloves) | | | | | |
| Biosafety cabinet use | | | | | |
| Exit Procedures | | | | | |
| Handwashing | | | | | |
| Exiting from the laboratory | | | | | |
| Incident Response Procedures | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| Security breach response | | | | | |
| Knowledge of facility exits | | | | | |
| Spill containment inside BSC | | | | | |
| Spill containment outside BSC | | | | | |
| Fire Alarm response | | | | | |
| BSC Alarm response | | | | | |
| HVAC Alarm response | | | | | |
| Response for Theft, Loss and Release and Inventory Discrepancies | | | | | |
| Incident reporting requirement | | | | | |
| Recovery Plan | | | | | |
| Animal work (Project dependent) | | | | | |
| Animal husbandry | | | | | |
| Animal Handling | | | | | |
| Handling and restraint of non-infected animals and infected with BSL3 agents | | | | | |
| Waste Management (bedding, carcasses, etc.) | | | | | |

SECTION III – ACCESS APPROVAL

This user was given full, unescorted access to the A/BSL3 facility on _____ (Date). This access is approved by the Principal Investigator and the Lab Manager and will expire one year from this approval date. Expiry date _____.

Principal Investigator Name

Principal Investigator Signature

High Containment Lab Director Name

HCLD Signature

Lab Manager Name

Lab Manager Signature

The training documentation will be kept by the Lab Manager and the High Containment Lab Director.

Appendix D: Visitor training checklist

Training Record for Visitors and Unapproved Personnel Accessing BSL-3

IMPORTANT: No entry is allowed of unauthorized personnel when the following is occurring unless authorized by the PI in consultation and approval by HCLD

- Working with high risk respiratory pathogens requiring BSL-3 containment and practices.
- Containment has been compromised (e.g., loss of negative pressure, breach in security of the facility or agent, unsafe practices)
- Natural disasters (e.g., fire, earthquake, flood, power outage)
- Laboratory incident involving biohazard agents (e.g., spill, exposure, etc).

Date of the visit:

Name (Print):

Affiliation:

Purpose for the Visit (briefly explain):

Security Training:

- Facility is secure and alarmed. (Alarms directed to UCPD)
- All agents are secured and inaccessible. You will not be allowed to handle agents.
- Full time escort (must follow instructions of escort at all times).
- Remove nothing from the facility without permission.

General Training:

- Entry/Exit procedure for the select agent laboratory (e.g., ID photocopied, issuance of badge, escort, donning/doffing PPE)
- Agent-specific Hazard with symptoms and post-exposure management
- Occupational health (high risk personnel: pre-existing conditions)
- Emergency/Incident Response Procedure (Loss of negative pressure, emergency contacts, evacuation procedure)
- Laboratory orientation (e.g., sink, eyewash, shower, fire extinguisher)

Additional Training based on consultation with RO/ARO:

- Not applicable (no select agent is accessed, BSL-3 containment is not compromised, no emergency incidents, etc)
- Applicable (*Check all that apply*)
 - Medical surveillance and immunization requirements/recommended
 - Respirator training and fit tested verified for type of respirator
 - Medical Waste Management
 - Other (specify):

Visitor Assurance:

- I attest that prior to accessing the select agent laboratory I received instructions on specific hazards associated in the laboratory, entry/exit requirements, emergency procedures, lab orientation, and other applicable training as outlined above.
- I have been given the opportunity to ask questions, have had my questions answered and I feel confident that I understand the training I have been provided.
- I agree to comply with the requirements pertaining to accessing the select agent laboratory.

Signature of Visitor:

Date:

Signature of Authorized Escort:

Date: