APPENDIX B: Biosafety Level Two Proficiency Checklist

Checklist for BSL-1 and BSL-2 Knowledge and Proficiency

Trainee Name: _____

Position: _____

Name of Supervisor Completing This Form: _____

Date: _____

Directions: Supervisor to mark "Y" (yes) or "N" (no) in the second column; mark "N/A" if not applicable.

Tasks: Biosafety Level 1	**Knowledgeable and Proficient?**
Perform hand washing after working with potentially hazardous agents & before leaving the lab	
Refrain from eating or drinking in the lab	
Refrain from mouth pipetting; use only mechanical pipetters	
Perform all procedures to minimize splashes and aerosols	
Handle and store sharp items such as razor blades and needles only in a safe manner	
Dispose sharp items only in sharps containers	
Demonstrate proper use of biosafety cabinet (*see second page for breakout section)*	
Understand basics of chemical disinfection, understand need to follow manufacturer's concentration and contact time, as well as expiration, and demonstrate proper use of disinfectants	
Decontaminate work surfaces properly	
Decontaminate cultures and other liquid wastes prior to disposal down the drain	
Demonstrate awareness of basic lab and biohazard signage	
Properly use protective equipment (lab coat, eyewear, gloves)	

Tasks: Biosafety Level 2 (in addition to BSL-1 tasks)	**Knowledgeable and Proficient?**
Be aware of hazards and meet specific entry requirements	
Be aware of and participate in medical surveillance and immunizations	
Read and understand biosafety manual	
Transport potentially infectious materials only in leak-proof labeled containers	
Be aware of post-exposure procedures in case of infectious agent exposure	
Perform all aerosol-producing procedures only inside BSC	
Use centrifuge safety cups properly	
Remove and dispose of protective garb in the lab	
Understand principals of steam sterilization and understand how to operate an autoclave	
Understand emergency response procedures in the lab	

Tasks: Use of a biological safety cabinet (BSC)	**Knowledgeable and Proficient?**
Understand the principles of a Class II BSC (HEPA-filtered air over the work surface, room air drawn in through the front grille, and HEPA-filtering of exhaust air)	
Understand what the magnehelic gauge (or equivalent digital display) represents and how to verify proper directional airflow	
Verify that the BSC is current for annual certification and is safe to use	
Demonstrate how to turn the blower on and off, and where to place the sash	

Turn the blower on and allow it to run for 5 minutes prior to starting work	
Demonstrate good control and movement of hands and arms to minimize disruption of the air curtain	
Keep the front and rear grilles clear from supplies and equipment	
Tasks: Use of a biological safety cabinet (BSC)	**Knowledgeable and Proficient?**
Maintain a safe distance from anyone working at the biosafety cabinet	
Place aerosol-producing equipment such as vortex equipment inside the BSC and toward the rear to prevent aerosols from reentering the worker's environment	
Load centrifuge safety cups and rotors inside the BSC	
Use protective equipment when working inside the BSC	
Work from "clean" to "dirty" and avoid contaminating clean/sterile materials	
Disinfect used plastic ware by placing in disinfectant reservoirs inside BSC	
Disinfect tools and equipment used in the BSC prior to removal	
Bag disposable items inside the BSC, and seal waste bags, prior to removal	
Understand why the use of flames and gas burners should be avoided	
Demonstrate proper use of vacuum systems including use of traps containing disinfectant and HEPA filters	
Demonstrate proper spill control and cleanup, including cleanup inside the drain pan; awareness of drain valve	
Disinfect the BSC at the end of the work session or the end of the day	
Turn off the blower at the end of the day and close the sash as applicable	

Understand the limitations of UV light and safe operation of UV light in the presence of workers in the lab	
Perform appropriate procedures in case of an emergency such as a power failure or failure of the blower	

Tasks: Understanding of general practices for cell and tissue culture	**Knowledgeable and Proficient?**
Understand the nature of the materials being handled; i.e. awareness if materials are non-infectious or infectious, if they are of human origin, if they are of animal origin and if so which species	
Understand how infectious agents are transmitted in the research setting Direct skin, eye, or mucosal membrane exposure Sharp injury (needle stick, scalpel cut) Animal bite or scratch Inhalation of droplets or aerosols Ingestion due to accidental contamination of hands/food/drink	
Understand the basics of recombinant DNA and if materials being handled are recombinant in nature and the subsequent biological hazards present	
Demonstrate familiarity with biological hazards: Natural mode of infection Means of transmission in the lab Susceptibility to disinfectants and treatment methods Recommended lab safety practices Occupational health requirements	

Tasks: Animal Biosafety Level 1 (in addition to BSL-1 tasks)	**Knowledgeable and Proficient?**
Understand that all animal procedures must be on an IACUC protocol and be familiar with the IACUC protocol in use	
Demonstrate safe handling of animals (grip techniques, positioning animal) <u>List animal species the trainee has worked with:</u>	

Demonstrate competence in applicable veterinary procedures such as blood collection, injection, other surgical procedures, and euthanasia and necropsy List veterinary procedures the trainee has performed:	
Demonstrate competence in applicable husbandry procedures such as cage change, cage cleaning, handling bedding, and room and equipment disinfection List husbandry procedures the trainee has performed:	
Enroll in and understand occupational health program that considers individuals' health status and immune competence and addresses naturally-occurring infections in animals and animal allergens	
Demonstrate understanding and proper use of protective equipment particularly mucous membrane protection when handling non-human primates	

Tasks: Animal Biosafety Level 2 (in addition to all above tasks)	**Knowledgeable and Proficient?**
Demonstrate proper use of physical and chemical restraints to handle animals Physical restraints may include engineering controls such as squeeze mechanisms List physical and chemical restraints with which the trainee has experience:	
Demonstrate proper use of additional protective equipment required to handle infectious animals	
Demonstrate understanding of how to capture an escaped animal	

Handle and disinfect bedding, carcasses, tissues, and cages	
Demonstrate understanding and proper use of biocontainment caging	
Understand emergency response procedures in the animal facility	

References:

- U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Biosafety in microbiological and biomedical laboratories. 5th ed. U.S. Public Health Service, 2009.

- Department of Environmental Health and Safety, University of Pittsburgh. Biological safety cabinets- the basics. http://www.ehs.pitt.edu/assets/docs/BiologicalSafetyCabinets-Basics.pdf.

- Department of Environmental Health and Safety, University of Pittsburgh. Biological safety cabinets. EHS Policy #05-004, January 1, 2007. http://www.ehs.pitt.edu/assets/docs/bio-cabinets.pdf.

- U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Guidelines for Biosafety Laboratory Competency. MMWR 60, April 15, 2011.