

Date: _____ Room: _____ Building: _____ Inspector: _____
 PI: _____ Department: _____ College: _____

Biosafety Level 2 Checklist

A. Facilities		Deficiency <input type="checkbox"/>
1.	<p>A biohazard sign is posted at the entrance to the lab and must include the biosafety level, contact numbers and procedures for entering/exiting the lab.</p> <p>Recommendations: A universal biohazard sign must be posted at the entrance of the laboratory when infectious agents are present. Posted information must include: lab's biosafety level, PI's name, <i>after hours</i> telephone number of PI or other emergency contact(s), and any special procedures required for entering and exiting the laboratory.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 A.9</p>	
2.	<p>Doors have locks and PI limits access to lab. Doors are closed during experiments.</p> <p>Recommendations: Limit/restrict access to the laboratory, per discretion of the PI while research is in progress. Only individuals who meet specific entry requirements are allowed to enter the laboratory. Unattended laboratories are secured.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 A.1, B.1, D.1</p>	
3.	<p>Eyewash station is available.</p> <p>Recommendations: Provide an eyewash station, which is readily available and properly functioning.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 D.8</p>	
4.	<p>Only plants and animals used in research are in the lab.</p> <p>Recommendations: Only plants and animals associated with the research project are permitted in the laboratory.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 B.9</p>	
5.	<p>No fabric covered chairs used in the BSL2 laboratory.</p> <p>Recommendations: Chairs used in laboratory work must be covered with a non-porous material that can be easily cleaned and decontaminated with an appropriate disinfectant.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL 2 D.4.b</p>	

Biosafety Level 2 Checklist

B. Documents		Deficiency <input checked="" type="checkbox"/>
1.	<p>Lab personnel are aware of how to access the NIH Guidelines (if working with recombinant DNA) and OSU Institutional Biosafety Manual.</p> <p>Recommendations: Lab personnel must be aware of how to access (hard copy or electronic version) the NIH Guidelines and the OSU Institutional Biosafety Manual.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 B.4; <i>NIH Guidelines for Research Involving Recombinant DNA Molecules</i> (April 2002), Appendix G-II-B-2-m</p>	
2.	<p>Personnel are aware of and can access approved protocols (IBC, IRB, IACUC) & SOPs describing procedures using biohazards and necessary precautions.</p> <p>Recommendations: PI must make sure that all personnel are aware of and can access approved protocols (IBC, IRB, IACUC) & SOPs describing procedures using biohazards and necessary precautions.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 B.4</p>	
3.	<p>Written procedures for decontamination, biohazard spill clean up and potential biohazard exposure, are posted in the laboratory. Necessary spill clean up supplies are available in the laboratory.</p> <p>Recommendations: Written procedures for decontamination, spill clean up and potential biohazard exposures are posted in the laboratory. All necessary supplies for cleaning up a biohazard spill must be available in the laboratory.</p> <p>Reference: <i>Ohio EPA Guidance Document for Large Generators of Infectious Waste</i> (11/98)</p>	
4.	<p>Lab supervisor ensures that personnel receive appropriate training and maintain written documentation of all training.</p> <p>Recommendations: Lab supervisor must provide lab personnel with adequate training regarding their duties, the necessary precautions to prevent exposures and exposure evaluation procedures. Personnel should receive updates annually, as well as when procedural or policy changes occur. All lab personnel, including females of child bearing age, shall be provided with information regarding immune competence and conditions that may predispose them to infection. All personnel with access to BSL2 areas shall take BSL2 training.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 B.5, A.11</p>	

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B. Documents		Deficiency ☒
5.	<p>Personnel are aware that incidents, which result in exposure to infectious materials/rDNA are reported to PI, IBO and Employee Health Services.</p> <p>Recommendations: Make laboratory personnel aware that spills and accidents, which result in overt exposures to biohazardous materials, must immediately be reported to the Principal Investigator, the Institutional Biosafety Officer and Employee Health Services. Personnel must also complete an OSU Accident Report.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories, 5th Edition. Section IV: BSL2 B.8</i></p>	
6.	<p>Personnel are enrolled in the Occupational Health Registry.</p> <p>Recommendations: Personnel must enroll in the Occupational Health Registry, so that medical evaluation, surveillance and treatment, including immunizations are provided as appropriate for agents handled or potentially present in the laboratory. To enroll, personnel need to complete an online questionnaire, which is accessible at https://rf.osu.edu/secure/ochre</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories, 5th Edition. Section IV: BSL2 A.11, B.2, B.8, Appendix H</i></p>	
7.	<p>If applicable, personnel have completed Bloodborne Pathogen Training within the last year.</p> <p>Recommendations: Document that personnel working with human blood or other potential bloodborne pathogens (including human cell lines, tissues and animal materials intentionally infected with human pathogens) receive bloodborne pathogen training on an annual basis.</p> <p>Reference: <i>Adopted Ohio Public Employment Risk Reduction Program Standard 29 CFR 1910.1030 (OSHA Bloodborne Pathogens Standard); Biosafety in Microbiological and Biomedical Laboratories, 5th Edition. Appendix H</i></p>	
8.	<p>If applicable, an Exposure Control Plan is available and reviewed/updated annually.</p> <p>Recommendations: If personnel are working with bloodborne pathogens, download the University Exposure Control Plan (ECP) that specifies the practices and procedures which will be implemented to eliminate or reduce employee exposure to blood and other potentially infectious materials. The ECP can be found at http://www.ehs.ohio-state.edu/index.asp?PAGE=research.bbp. Complete Appendix A to be specific to your laboratory. All personnel must review, sign and date the ECP (including the completed Appendix A) annually.</p> <p>Reference: <i>Adopted Ohio Public Employment Risk Reduction Program Standard 29 CFR 1910.1030 (OSHA Bloodborne Pathogens Standard); Biosafety in Microbiological and Biomedical Laboratories, 5th Edition. Appendix H</i></p>	

Biosafety Level 2 Checklist

C. Procedures		Deficiency <input checked="" type="checkbox"/>
1.	<p>Procedures involving infectious materials that may generate an aerosol are conducted in a BSC or other approved containment device (or centrifuge safety cups are opened in BSC)</p> <p>Recommendations: Biosafety cabinets and/or other appropriate containment/protective devices must be used to contain aerosol producing activities (e.g. opening containers with non-ambient pressures, intranasal inoculation of animals, pipetting, shaking or harvesting of infected tissues), aerosol producing equipment (centrifuges/safety cups, blenders, shakers) and when using high concentrations or volumes of organisms.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 C.1-a</p>	
2.	<p>Evidence of safe handling of sharps.</p> <p>Recommendations: Policies must be followed for the safe handling of sharps. Whenever possible, lab supervisors shall adopt improved engineering devices and work practice controls to reduce the risk of sharps injuries, including, needles must not be bent, sheared, broken, recapped, removed from disposable syringes or otherwise manipulated by hand prior to disposal. Used disposable needles and syringes must immediately be placed in a puncture resistant sharps disposal container. Use of needles and syringes shall be limited to only when necessary. Non-disposable sharps must be placed in a hard walled container for transport to processing area for decontamination. Broken glass should not be handled directly.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 A.5, A.5-a, A.5-b, A.5-c, A.5-d,</p>	
3.	<p>Approved disinfectant & appropriate decontamination procedures are followed. Disinfectant bottles are labeled and dated.</p> <p>Recommendations: Personnel are using the disinfectant and decontamination procedures approved in the relevant protocol. Label and date disinfectant bottles when preparing solutions.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 A.7, B.7, B.7-b</p>	
4.	<p>All lab wastes are appropriately containerized and labeled. Contaminated waste/liquid/sharps are disposed of in accordance with OEPA regulations/OSU policies.</p> <p>Recommendations: Laboratory waste must be labeled and contained appropriately. Infectious/biohazardous waste must be handled, packaged, and disposed of in accordance with Ohio Environmental Protection Agency Infectious Waste Regulations and OSU policies. Provide appropriate materials (e.g. biohazard bags, biohazard boxes, sharps disposal containers) and ensure that personnel are adequately trained on proper disposal of infectious wastes. Liquid infectious waste must be collected in plastic, leak-proof containers, labeled as biohazard waste and disposed of in a biohazard burn box. Liquid waste from vacuum traps, if generated while working with infectious material, which includes human cell lines, is considered infectious waste per the OEPA. OSU does not maintain a permit with OEPA to treat liquid biohazard waste with bleach and dispose of in the sanitary sewer.</p> <p>Reference: <i>Ohio EPA Guidance Document for Large Generators of Infectious Waste (11/98)</i></p>	
5.	<p>Contaminated waste/liquid/sharps are disposed of in accordance with OEPA regulations/OSU policies.</p> <p>Recommendations: Infectious/biohazardous waste must be handled, packaged, and disposed of in accordance with Ohio Environmental Protection Agency Infectious Waste Regulations and OSU policies. Provide appropriate materials (e.g. biohazard bags, biohazard boxes, sharps disposal containers) and ensure that personnel are adequately trained on proper disposal of infectious wastes. Liquid infectious waste must be collected in plastic, leak-proof containers and disposed of in a biohazard burn box. Liquid waste from vacuum traps, if generated while working with infectious material, which includes human cell lines, is considered infectious waste per the OEPA. OSU does not maintain a permit with OEPA to treat liquid waste with bleach and dispose in the sanitary sewer.</p> <p>Reference: <i>Ohio EPA Guidance Document for Large Generators of Infectious Waste (11/98)</i></p>	

Biosafety Level 2 Checklist

C. Procedures		Deficiency ☒
6.	<p>Contaminated or infectious materials are safely transported outside of the laboratory.</p> <p>Recommendations: Contaminated and/or infectious materials must be placed in durable, leak-proof containers that are closed prior to removal from the laboratory.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 A.8-a, A.8-b</p>	
7.	<p>If experiments are assigned different biosafety levels, lab areas must be clearly designated.</p> <p>Recommendations: When experiments are being conducted at different biosafety levels within the same laboratory, lab areas must be clearly designated as to where BSL1 and/or BSL2 work is being conducted.</p> <p>Reference: <i>NIH Guidelines for Research Involving Recombinant DNA Molecules</i> (April 2002) Appendix G-II-B-1-h</p>	
8.	<p>PPE (labcoats, gloves, etc) is worn when working with hazardous materials. Eye protection, appropriate for the anticipated hazard, shall be worn in the lab. PPE is removed before leaving the lab and is properly discarded/laundered.</p> <p>Recommendations: Protective clothing (PPE) must be worn while working with hazardous materials. Glove selection shall be based on an appropriate risk assessment. Eye protection, appropriate for the anticipated hazard, shall be worn in the lab. Personnel must remove PPE before leaving the laboratory. PPE must be discarded properly after use or is laundered by the institution. PPE shall not be taken home by personnel. If sent offsite for laundering, it is properly bagged and the laundry facility is notified of potential contaminants.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 C.2, C.3, C.4, C.4-a, C.4-b, C.4-c</p>	
9.	<p>Infectious agents are secured.</p> <p>Recommendations: The PI is aware that certain biohazardous materials and toxins may be of interest to persons or groups interested in terrorist or other illegal activities. Those agents that might pose a threat to humans, animals, agriculture or the livestock industry must be kept in a secure place within the laboratory. Prior to shipping materials, the PI is responsible for assuring that the recipient is a recognized researcher from a well-known and reputable institution.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section VI</p>	

Biosafety Level 2 Checklist

D. Equipment	Deficiency <input checked="" type="checkbox"/>
<p>1. BSCs are installed so that air fluctuations do not interfere with proper operations.</p> <p>Recommendations: Biosafety cabinets must be installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs shall be located away from doors, heavily traveled areas of the laboratory, windows that can be opened and other possible airflow disruptions.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 D.6</p>	
<p>2. Continuous flame producing devices are not used in the BSC.</p> <p>Recommendations: Continuous flame producing devices shall not be used in BSCs. Flaming of items inside the BSC is unnecessary if good microbial technique is utilized. If a flame must be used, then one with a pilot light (e.g. Touch-o-Matic) should be chosen. Continuous flame models can produce turbulence, disrupting the BSC's airflow and the heat produced can damage the HEPA filter.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Appendix A, Section V</p>	
<p>3. No storage on front air grille or blocking rear air grille of BSC.</p> <p>Recommendations: Do not block the air grilles in the BSC. Materials placed on or in front of the air grilles cause disruption to the airflow, resulting in turbulence, possible cross-contamination and/or breach of containment. BSC shall not be overcrowded with equipment or used for storage. Load only the materials necessary for the experiment into the BSC.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Appendix A, Section V</p>	
<p>4. Vacuum lines are protected with in-line filters and contain liquid disinfectant traps.</p> <p>Recommendations: Vacuum lines must be protected with in-line filters. Filters must be replaced as needed. Liquid disinfectant traps are required.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 D.7</p>	
<p>5. Glass disinfectant traps are in appropriate secondary containment.</p> <p>Recommendations: Glass disinfectant traps shall be placed in plastic or metal, secondary containment, large enough to contain the liquid in the trap, if it were to break.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 B.6; Adopted <i>Ohio Public Employment Risk Reduction Program Standard 29 CFR 1910.1030 (OSHA Bloodborne Pathogens Standard)</i></p>	
<p>6. Centrifuge has aerosol proof safety cups or rotors.</p> <p>Recommendations: When centrifuging infectious materials use aerosol proof safety cups or rotors, to prevent leakage during spinning. Safety cups and rotors shall then be opened in a BSC. Note: If established human cell lines are the <u>ONLY</u> biohazard being centrifuged, the use of a low speed centrifuge or open buckets is acceptable, however safety cups/rotors are still recommended. If any other biohazard agent (RG2) will be centrifuged, aerosol proof safety cups or rotors are REQUIRED.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 C.1, C.1-a, C.1-b</p>	
<p>7. Lab equipment is decontaminated before repair, maintenance or removal from the lab.</p> <p>Recommendations: Lab equipment is routinely decontaminated, as well as after spills, splashes or other potential contamination. Equipment must be decontaminated prior to repair, routine maintenance or removal from the lab.</p> <p>Reference: <i>Biosafety in Microbiological and Biomedical Laboratories</i>, 5th Edition. Section IV: BSL2 B.7-b</p>	
<p>8. Equipment for use or storage of biohazards is labeled with a biohazard symbol.</p> <p>Recommendations: Label equipment where human pathogens are used or stored with the universal biohazard symbol.</p> <p>Reference: Adopted <i>Ohio Public Employment Risk Reduction Program Standard 29 CFR 1910.1030 (OSHA Bloodborne Pathogens Standard)</i></p>	