Instructions:

This template is designed to help aid you in the development of your BSL-2 standard operating procedure, but you may also use your own template. Feel free to add more protocols and information as needed for your particular biohazard. The sections in square brackets highlighted in yellow should be replaced with the appropriate text. The template was made in the College of Science, so please update any information as needed for your college/department. Please also delete this instruction page from the SOP.

**[Name of Course or Lab]**

**San José State University**

**BSL-2 Standard Operating Procedures**

**[Month and year]**

**SOP for Work with [BSL-2 agents]**

**SYNOPSIS**

This laboratory is approved to work with BSL-2 materials by the Institutional Biosafety Committee. The BSL-2 designation is suitable for work that involves infectious agents that pose a moderate hazard to personnel and the environment.1 The following restrictions and requirements apply:

1. Access to the laboratory is limited to authorized personnel and is restricted when work is being conducted.
2. Laboratory personnel need to obtain specific training in general laboratory work, standard microbiology procedures, and in handling pathogenic agents. Personnel are supervised by the [primary investigator/instructor] who is competent in handling BSL-2 infectious agents and associated procedures.
3. All laboratory procedures in which infectious aerosols or splashes may be created are conducted using appropriate secondary containment procedures or other physical containment equipment such as a biological safety cabinet (BSC).
4. Demonstrated competence in procedures for responding to and managing spills, personnel exposures, and emergency situations is required of all affiliated laboratory personnel.

**Contact information: [fill out]**

Primary Investigator/Instructor:

Primary Investigator/Instructor Email:

Office phone number:

Laboratory phone number(s) and room(s):

**Detailed BSL-2 Practices**

[Please include a summary of BSL-2 organisms used, human disease symptoms and routes of exposure with appropriate citations. Organisms with shared human disease symptoms and routes of exposures can be grouped together as a single hazard class, but please list each set of human disease symptoms and route of exposures in a separate paragraph. Please also include specific information about the type(s) of BSL-2 experiments and associated procedures that are proposed.

*Note: to determine risk group category for bacteria, viral groups, fungi genus and parasite genus refer to:*

<https://my.absa.org/tiki-index.php?page=Riskgroups>

*Note: to determine Bloodborne Pathogens risk, refer to:*

<https://www.dir.ca.gov/title8/5193.html>

*For more information about cultured cell lines, refer to:*

[www.atcc.org](http://www.atcc.org)] ]

1. **Access:** Limited/restricted access to [room where BSL-2 work is conducted] is enforced [at all times/when BSL-2 work is being conducted].All personnel allowed to enter [room where BSL-2 work is conducted] when BSL-2 work is being conducted are required to obtain authorization from the [PI/instructor] after safety training. Entry doors have signs that indicate BSL-2 materials are in use in the lab space.
2. **Personnel training:** Laboratory personnel receive specific training in handling potentially pathogenic agents. They are trained and supervised by the [PI/instructor] who is competent in handling BSL-2 infectious agents and associated procedures involving these agents.
3. *Standard microbiological practices:*
   * 1. Personnel must wear gloves, a lab coat, eye protection, closed-toe shoes and full length pants during work with pathogens. Personal protective equipment should be removed before leaving for non-laboratory areas.
     2. All personnel should wash hands after working with potentially hazardous materials and before leaving the laboratory.
     3. No hand or surface to face contact, which includes no eating, drinking, smoking, handling contact lenses, applying cosmetics, or storing food for human consumption is not permitted in the laboratory.
     4. Mouth pipetting is prohibited.
     5. All members of the laboratory must be aware of and follow proper department waste disposal guidelines.
4. *Documentation and additional training:*
5. All personnel will take the CITI “Initial Biosafety Training” module [The CITI “OSHA Bloodborne Pathogens” module is also required for work with human-derived cells, tissues and fluids. Alternatively, you can document your own biosafety training materials and have students sign.]
6. Personnel training will be documented and maintained in [room where BSL-2 work is conducted].
7. Additional training will be provided as needed if new procedures are introduced.
8. Where necessary, additional guidance will be sought from the Institutional Biosafety Committee (IBC).
9. **Laboratory procedures:** All laboratory procedures in which infectious aerosols or splashes may be created are conducted in additional secondary physical containment equipment such as a Class II Biological Safety Cabinet (BSC).
   * + 1. *Procedures for the transport of pathogenic organisms:*BSL-2 materials that are transported must be placed into a primary containment device such a closed-top tube, then in turn, placed into a secondary containment device, such as a leak-proof plastic container.
       2. *Procedures for disinfection of laboratory surfaces, equipment and other materials used to work with infectious agents:*
          1. Once work in a BSC has been completed, the hood work surfaces are disinfected with 70% ethanol.
          2. Any laboratory work surface (e.g., bench top) used for experimental procedures is similarly disinfected with [70% ethanol or other approved disinfectant] before and after each laboratory session.
          3. [Procedure for disposal of contaminated liquid waste, for example: “Media and excess cells should be decontaminated by aspirating into a flask with a final volume of 10% bleach for a minimum contact time of 30 minutes.”]
          4. Disposable supplies or equipment are disposed of in the appropriate biohazard container, approved by the College of Science (COS).
          5. Reusable items are autoclaved in the Microbiology Service Center (MSC, DH 637) or disinfected before being re-used for new experiments.
       3. *Procedures for the management and removal of biohazardous waste from the laboratory and policies for the safe handling of sharps, pipettes and broken glassware:* All materials used in infectious agent procedures are disposed of as outlined in the Biohazardous Waste section of the departmental guidelines [for example - “San Jose State University Biological Sciences Department Safety Rules for Teaching Laboratories.”2 or “San Jose State University Biological Sciences Department Safety Rules for Research Laboratories.”3 Processing of all biohazard waste is done by trained CoS technicians in the MSC, DH 637. In brief:
          1. General Biohazard Solids Disposal- Biohazard bags to be disposed are closed and transported in secondary containment to the MSC.
          2. Biohazard Sharps Disposal- Biohazard sharps containers ready for disposal are also collected at the MSC.
          3. Serological Pipet Disposal- Used serological pipets are disinfected in secondary containment trays using 3% DC Gold before disposal by the MSC staff.]
10. **Procedures for responding to and managing spills and exposures to pathogens.** Any spill or injury to personnel must be immediately reported to the PI and acted upon as outlined in the SJSU Bloodborne Pathogens Program guidelines.4 Any significant research-related accidents and illnesses must be reported to the IBC ([biosafety@sjsu.edu](mailto:biosafety@sjsu.edu)). Certain incidents, as described in the NIH Guidelines, must be reported to the NIH Office of Science Policy (OSP).
11. *Large biohazardous spills*
12. [Fill out contact info appropriate to your department/college; below is an example for Biological Sciences teaching classes in the CoS:

For classes, during normal business hours: Notify the MSC staff:

Veronica Zavala Arthur Valencia Matthew Voisinet

Office: 408-924-4926 Office: 408-924-4874 Office: 408-924-4928

During any hour contact: Notify the College of Science Safety Coordinator:

Randy Kirchner

Office: 408-924-5004]

1. Alternative contact: Call the University Police department at 911 on a campus phone or 408-924-2222 on a cell phone.
2. *Injury or exposure to personnel*
   * + 1. Flush eyes, mouth or nose for 15 minutes at the nearest eyewash station. For skin exposure, wash the affected area with soap and water, and flush for 15 minutes.
       2. Notify the University Police department by dialing 911 on a campus phone or 408-924-2222 on a cell phone.
       3. Submit a Student and Visitor Accident Report to Budget & Risk Management.

**Citations**

1. Chosewood, L. C.; Wilson, D. E., *Biosafety in Microbiological and Biomedical Laboratories, 5th edition.* U.S. Dept. of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health: Washington, D. C., 2009. https://www.cdc.gov/labs/pdf/CDC-BiosafetyMicrobiologicalBiomedicalLaboratories-2009-P.PDF (accessed Jan 30, 2020).

2. *San Jose State University Biological Sciences Department Safety Rules for Teaching Laboratories*, **2015**. [*https://www.sjsu.edu/biology/docs/Safety%20Rules%20for%20Teaching%20Laboratories%20120115.pdf*](https://www.sjsu.edu/biology/docs/Safety%20Rules%20for%20Teaching%20Laboratories%20120115.pdf) (accessed Jan 30, 2020).

3. *San Jose State University Biological Sciences Department Safety Rules for Research Laboratories*, **2015**. [*http://www.sjsu.edu/biology/docs/Safety%20Rules%20for%20Research%20Laboratories%20120115.pdf*](http://www.sjsu.edu/biology/docs/Safety%20Rules%20for%20Research%20Laboratories%20120115.pdf) (accessed Jan 30, 2020).

4. *San Jose State University Bloodborne Pathogens Program*, **2020**. https://www.sjsu.edu/fdo/docs/EHS\_280\_Bloodborne\_Pathogens\_Program.pdf (accessed Feb. 15, 2021).