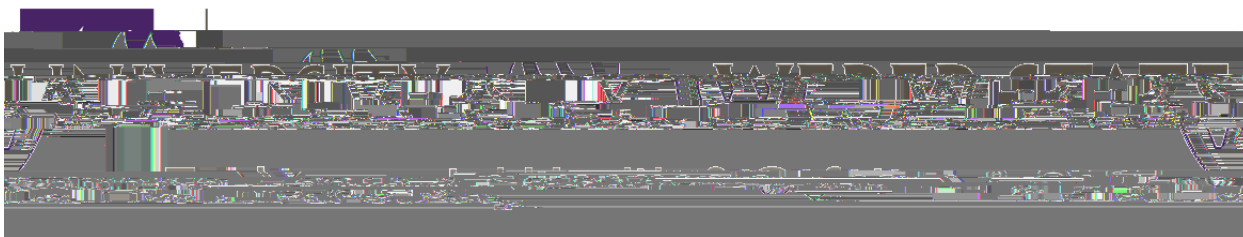


Weber State University

Biosafety Program



Published by the WSU Institutional Biosafety Committee and
the
Environmental Health and Safety Office
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Table of Contents

rDNA Registration Form

Bloodborne Pathogen Exposure Control Plan

Hepatitis B Vaccination Form

INTRODUCTION

Purpose

The purpose of the Weber State University (WSU) Biosafety Program is to assist in protecting personnel; minimize exposure to biohazardous materials, prevent the release of biohazardous materials that may harm humans, animals, plants, or the environment, and protect the integrity of experimental materials. The WSU Biosafety Program is intended to be a resource for information, guidelines and procedures that will enable safe research and learning environments and to eliminate, or reduce, the potential for exposure to biohazards.

Scope

Biosafety encompasses the knowledge, techniques, equipment and facilities necessary to prevent or minimize an exposure to, or release of, a biohazard. The information presented here also reflects the requirements and guidelines of federal and state regulations, information about safe work practices, safety equipment and personal protective equipment. It is intended that the Principal Investigator, Laboratory Instructors, and supervisory personnel will supplement this information with instruction and guidance regarding specific practices and procedures unique to the work being done by those in their laboratories.

The Biosafety Program fulfills these goals, with the Environmental Health and Safety (EHS) staff members providing support for the Institutional Biosafety Committee (IBC), the Institutional Animal Care and Use Committee (IACUC), managing the Bloodborne Pathogens Exposure Control Plan, and consulting on exposure assessments with Human Resources. The Biosafety Program outlines appropriate practices, university policies, and regulatory requirements for working safely with biohazardous materials.

Definitions

Biohazardous Materials: Materials of biological origin that could potentially cause harm to humans, domestic or wild animals, or plants. Examples include recombinant or synthetic nucleic acid molecules, transgenic animals or plants, human, animal, or plant

BIOSAFETY PROGRAM

and guidelines to the provost, deans, directors, Environmental Health and Safety, department chairs, principal investigators, supervisors, lab instructors, and, ultimately, each individual.

Environmental Health and Safety

Environmental Health and Safety is responsible for the development and oversight of proper management practices for all biohazardous materials at WSU, including developing and implementing procedures for WSU. Environmental Health and Safety is also responsible for ensuring that affected departments are aware of the university policies and regulatory guidelines regarding the proper use of biohazardous materials.

Biosafety Officer (BSO)

The BSO

BIOSAFETY PROGRAM

Initiation and Authorization

The PI must complete the rDNA Registration Form (Appendix A) when their research involves the introduction of recombinant or synthetic nucleic acid molecules into organisms, cells, or viruses. Submit this form at ehs@weber.edu. The IBC will review the registration form and perform a thorough risk

Renewal

Authorization for projects involving the use of rDNA, infectious agents or biological toxins must be renewed every three years or if there are any significant changes in research or processes. A reauthorization form will be sent to the PI sixty days before the authorization anniversary date.

MEDICAL SURVEILLANCE

Workplace exposure to human pathogens, blood, tissues, cell lines, and other potentially infectious materials (OPIM), as defined by the OSHA Bloodborne Pathogen Standard (29 CFR1910.1030), requires medical surveillance and annual Bloodborne Pathogens Exposure Control Training. Weber State University has a written Bloodborne Pathogens Exposure Control Plan available to employees (Appendix B). Weber State University Human Resources provides medical surveillance for all employees who are exposed to identified or regulated risks.

Vaccinations and Testing

Employees who work with human blood must be given the option of being vaccinated, provided a vaccine is available, and informed of the risks associated with the vaccine. High-risk personnel, such as health care workers, must also be offered a titer test two months after the final hepatitis B vaccine dose. Hepatitis B vaccinations will be administered by WorkMed and billed to the appropriate PI or department. Affected personnel choosing to receive a vaccination must schedule an appointment with WorkMed (801) 387-6150. Affected personnel choosing not to receive a vaccination must complete the Decline to be Immunized portion of the Hepatitis B Vaccination Form (Appendix C). The department supervisor must
personnel file
and a copy sent to Human Resources.

Exposure to Biohazardous Materials

Before workB8m12 reW*nB-24(su)28kG Tm0nBT/FrTf1F5 12(9(r)-3(ed)17(ust)-6(co)-4(a)8(r)-3(0 G[(m),()11(B v)13



Laboratory Practice and Technique

Personnel can be infected with organisms they come in contact with in the workplace. In order for infection to occur, there must be an adequate number of organisms to cause disease (infectious dose) and a route of entry into the body. Knowing how infectious organisms are transmitted and the infectious doses can help in evaluating risk and avoiding infection. Information about the organism(s) must be gathered prior to starting work with them. Safety information about pathogens can be obtained through PSDSs and the *BMBL*.

Infectious agents are transmitted through one or more routes of exposure:

Sharps (parenteral) injuries (needlesticks, cuts with contaminated broken glass, etc.).

BIOSAFETY PROGRAM

Safety Equipment (Primary Containment)

Primary containment equipment is designed to reduce or eliminate exposure to biohazardous materials. Biosafety cabinets (BSC) serve as the primary containment for biohazardous materials in the laboratory. Other types of primary containment equipment include sealed centrifuge cups and special airtight enclosures designed to contain specific laboratory equipment (such as Sonicators) that are likely to produce aerosols of biohazardous materials.

Biosafety Cabinets (BSC)

Biosafety cabinets are designed to protect personnel, the products being handled, and the environment from particulate hazards, such as infectious microorganisms. Biosafety cabinets use uniform vertical laminar airflow to create a barrier to airborne particulates. Biosafety cabine

BIOSAFETY PROGRAM

Sterigage) verify that the autoclave reached adequate temperature for a long enough time to kill microorganisms.

Use autoclave tape on all bags of biohazardous waste. Before autoclaving bags of biohazardous

also be used to indicate if media or equipment has been autoclaved.

Once a month, use a biological indicator (*Geobacillus stearothermophilus* spore strips or spore suspension). Bury the indicator in the center of the load to validate adequate steam penetration. Document the biological indicator results in a log book or other suitable form.

Autoclaves use saturated steam under high pressure to achieve sterilizing temperatures. Proper use is important to ensure operator safety. Prevent injuries when using the autoclave by observing the following rules:

Wear heat-resistant gloves, eye protection, closed toe shoes, and a lab coat, especially when unloading the autoclave.

Prevent steam burns and shattered glassware by making sure that the pressure in the autoclave chamber is zero before opening the door at the end of a cycle. Slowly open the autoclave door and allow any residual steam to escape gradually.

Allow items to cool for at least 10 minutes before removing them from the autoclave. Be careful with glass containers that contain liquids. Superheating is a condition that often occurs in autoclaves. Superheating occurs when liquids are at a temperature above their normal boiling point but do not appear to be boiling. In situations where personnel hurry to remove flasks or bottles from the autoclave, these superheated containers can explode or boil over.

Never put sealed containers in an autoclave. They can explode. Large bottles with narrow necks may boil over violently if filled too full of liquid.

Never put solvents, volatile, or corrosive chemicals (such as phenol, chloroform, bleach, formalin, fixed tissues, etc.), or radioactive materials in an autoclave.

Chemical Disinfectants

Items that cannot be autoclaved can generally be decontaminated using a chemical disinfectant. Choosing the appropriate chemical disinfectant depends on the surface or item needing decontamination, as well as the particular organism requiring inactivation.

When choosing a chemical disinfectant, review the PSDS of the Public Health Agency of Canada (if available) <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment.html> for 0912 0 612 70o2792 reW*nBT/F3 11.04 Tf1 0 0 1 246.53 221.09 Tm0 g0 G[(

BIOSAFETY PROGRAM

- Formaldehyde has an irritating odor and is a sensitizer, so a potential exists for

BIOSAFETY PROGRAM

2. Biohazardous spill within laboratory
 - a. Outside of a BSC: the laboratory must be evacuated for at least 30 minutes to allow any potential aerosols to settle. It is the responsibility of the last person out to ensure that all doors have been closed.
 - b. Within a centrifuge: the centrifuge should be closed as soon as the spill is noticed. Wait

