University of Kansas - Lawrence Campus
KU-Department of Environment, Health & Safety

Blood-Borne Pathogens
Laboratory Exposure Control Plan

Location: _____ Date: _____

PI: _____ Signature: _____

Phone: _____ Emergency Phone: _____

Lab Safety Contact: _____ Phone: _____

I. **PURPOSE:** Some techniques or specimens used in this research laboratory are hazardous and could cause exposure to human disease organisms. The purpose of this Exposure Control Plan is to describe how to eliminate or minimize the danger of exposure to human blood or other potentially infectious materials, in compliance with the OSHA Blood-borne Pathogens Standard (29 CFR 1910.1030). This template is to be completed by each applicable researcher (principal investigator or PI) based upon the unique specimens and the nature of work being conducted under her/his auspices.

Universal Precautions: It is the policy of the University of Kansas, Lawrence and this laboratory to ensure practice of Universal Precautions and all other appropriate methods to reduce exposure to human blood borne pathogens. Universal Precautions is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other blood borne pathogens.

II. **EXPOSURE DETERMINATION**: Each PI who has lab personnel with potential exposure shall prepare an exposure determination. This exposure determination shall contain the following: A list of all job classifications in which all lab personnel in those job classifications have exposure; A list of job classifications in which some lab personnel have exposure, and a list of all tasks and procedures or groups of closely related tasks and procedures in which exposure occurs and that are performed by lab personnel in job classifications listed in accordance with the provisions of (c)(2)(i)(B) of OSHA standards.

The materials used in this laboratory, which may cause exposure to human or primate blood borne pathogens, include the following: (*Mark all that apply*.)

___ Human or primate blood, serum, plasma, blood products, components or cells
___ Human or primate body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid visibly contaminated with blood, and all body fluids where it is difficult to differentiate between fluids
___ Any unfixed human or primate tissue or organ (other than intact skin)
___ Cell, tissue or organ cultures containing HIV; culture medium or other solutions containing HIV, HBV or HCV; blood, organs or other tissues from experimental animals infected with HIV, HBV or HCV
___ Other Potentially infectious materials. Identify: _____
_____
_____

A. **The job classifications** in which lab personnel may have exposure to human blood borne pathogens include the following: (*Check applicable groups and list the names of persons potentially at risk.)*

___ Professor: _____
___ Postdoctoral Researcher: _____
_____
___ Staff Research Associate: _____
_____
___ Laboratory Assistant: _____
_____
___ Graduate Student: _____
_____
___ Undergraduate Student: _____
_____
___ Others:(See Attached list) _____
_____
_____
_____

C. **The tasks and procedures** used in this laboratory which may pose risk of exposure to human or primate blood borne pathogens include the following: (*Mark all that apply.)*

___ Phlebotomy or venipuncture of humans or primates.
___ Injections into humans or animals
___ Other use of needles with human or primate specimens
___ Preparing, dissecting, cutting, or handling human or primate tissue
___ Pipetting, mixing, or vortexing human or primate blood, fluid or tissue
___ Centrifuging human or primate blood, fluid or tissue
___ Handling tubes or other containers of human or primate blood, fluid or tissue
___ Handling contaminated sharps or other contaminated waste
___ Cleaning up spills of human or primate blood or other body fluids
___ Preparing or handling primary human or primate cell cultures
___ Others:(See Attached list)

_____
_____
_____
_____

III. **METHOD OF COMPLIANCE**: Universal Precautions shall be observed to prevent contact with blood or other potentially infectious materials. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials.

A. **Written Exposure Control Plan**: Each PI having any lab personnel with occupational exposure as defined by paragraph II Exposure Determination of this form shall establish a written Exposure Control Plan designed to eliminate or minimize lab personnel exposure.

B. **Engineering and Work Practice Controls**: Engineering and work practice controls shall be used to eliminate or minimize lab personnel exposure. Where exposure remains after implementation of these controls, personal protective equipment shall also be used.

1. Hand washing: The PI shall provide hand-washing facilities that are readily accessible to lab personnel. When provision of hand washing facilities is not feasible, the PI shall provide either an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes.

2. Mouth pipetting or mouth suctioning is strictly prohibited.

3. Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is the reasonable likelihood of exposure is prohibited.

4. Food and drink are not stored in refrigerators, freezers, shelves, cabinets, bench tops, ovens or microwaves where blood or other potentially infectious materials are kept or may be present.

5. All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets of these substances.

6. Used needles and other sharps are not sheared, bent, broken, recapped, or re-sheathed by hand. Used needles are not removed from disposable syringes. Contaminated sharps are placed immediately in a puncture resistant and labeled "sharps container".

7. Leak-resistant containers are used during the collection, handling, processing, storage, transport or shipping of blood specimens and other potentially infectious materials. The containers are appropriately labeled or color-coded and are closed prior to transport. If outside contamination could occur, the primary container is placed in a second container that prevents leakage.

8. Engineering controls are examined and maintained on a regular schedule to ensure their effectiveness. Biological safety cabinets (BSC's) are checked for proper functioning each time they are used. The laboratory safety person will check them for proper functioning every *month*, by checking the magnehelic gauge and certification date. The biosafety cabinet must be certified annually and the inspection record posted on the Biosafety Cabinet.

LAST CERTIFIED

Date: _____
Next Due Date: _____

This laboratory uses other engineering controls and equipment that requires regular examination. A list of the equipment and the maintenance schedule for each piece is listed below:

EQUIPMENT **SCHEDULE**
Centrifuge or aerosol containment devices _____
Sharps containers _____

9. All equipment is examined prior to servicing or shipping and is decontaminated as necessary. In the event that decontamination of specific equipment or portions of such equipment is not feasible, a readily observable label, the international biohazard symbol and the word "biohazard" will be attached to the equipment stating which portions remain contaminated. Specific types of equipment which require decontamination are:
_____
_____
_____
_____
_____
_____
_____

C. **Housekeeping**: PI shall ensure that the worksite is maintained in a clean and sanitary condition. The PI shall determine and implement an appropriate written schedule for cleaning and method of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area. These procedures should be in practice by everyone in the laboratory.

1. Contaminated work surfaces shall be decontaminated with an appropriate disinfectant after completion of procedures; immediately or as soon as feasible when surfaces are overtly contaminated or after any spill of blood or other potentially infectious materials; and at the end of the work shift if the surface may have become contaminated since the last cleaning.

2. Protective coverings, such as plastic wrap, aluminum foil, or imperviously-backed absorbent paper used to cover equipment and environmental surfaces, shall be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the work shift if they may have become contaminated during the shift.

3. All bins, pails, cans, and similar receptacles intended for reuse which have a reasonable likelihood for becoming contaminated with blood or other potentially infectious materials shall be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

4. The work site is maintained in a clean and sanitary condition. Benches and biosafety cabinets are cleaned at the end of the day and after any spill using the following disinfectant(s): _____
   _____

   which is (are) located: _____

Other work areas are cleaned and decontaminated according to the following schedule:

AREA	SCHEDULE	PROCEDURE	DISINFECTANT

5. Broken glassware is not picked up directly with the hands. It must be cleaned up using mechanical means, such as a brush and dustpan, tongs, or forceps.

6. Waste is handled according to the standards of good laboratory practice and the campus procedures for safe disposal of hazardous biological waste. Hazardous biological waste generated by this laboratory is disposed of by:

_____
_____
_____
_____
_____
_____
_____
_____

D. **Personal Protective Equipment**: When there is laboratory personnel exposure, the PI shall provide, at no cost to personnel, appropriate personal protective equipment such as, but not limited to, gloves, gowns, laboratory coats, face shields or masks and eye protection, and mouthpieces, resuscitation bags, pocket masks, or other ventilation devices. Personal protective equipment will be considered "appropriate" only if it does not permit blood or other potentially infectious materials to pass through to or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

1. Laboratory personnel must wear gloves, lab coat, and safety glasses whenever handling human or primate blood, fluids or tissue. To be effective, gloves must provide protection against blood or any potential infectious agent. Occasional testing of your glove brand and type is recommended; one simple test is to fill the glove with water to check for leaks. In any event, gloves must be replaced frequently and immediately if they become contaminated or damaged in any way.

2. Laboratory personnel wear whatever personal protective equipment (apron, booties, face shield, mask, etc.) is needed to prevent blood or other potentially infectious material from reaching their street clothes, skin, eyes, mouth, or other mucous membranes, under normal conditions.

   Tasks and procedures in this laboratory which require use of additional personal protective equipment or clothing include:

   TASK/PROCEDURE PPE REQUIRED
   _____
   _____
   _____
   _____
   _____

3. All necessary PPE, in correct sizes, is readily accessible at these locations:
   Disposable gloves _____
   Utility gloves _____
   Lab coats _____
   Safety glasses/goggles _____
   Face shields/masks _____
   Other_____
   _____

4. PPE is removed prior to leaving the work area and is placed in designated areas for disinfection or disposal. The following PPE should be put in these locations:

   Disposable gloves _____
   Utility gloves _____
   Lab coats _____
   Safety glasses/goggles _____
   Face shields/masks _____
   Other _____
   _____
   _____

5. Contaminated laundry is handled as little as possible. Contaminated laundry shall be bagged or containerized at the location where it was used and shall not be sorted or rinsed in the location of use.

   _____
   _____
   _____
   _____
   _____
   _____
   _____

6. All personal protective equipment shall be removed prior to leaving the work area.

7. Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood, other potentially infectious materials, mucous membranes, and non-intact skin. Disposable (single use) gloves such as surgical or examination gloves shall be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or when their ability to function as a barrier is compromised.

8. Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin-length face shields, shall be worn whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

9. Appropriate protective clothing such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments shall be worn in occupational exposure situations. The type and characteristics will depend upon the task and degree of exposure anticipated.

E. **Information and Training**: PI's shall ensure that all laboratory personnel with exposure participate in a training program that must be provided at no cost to person and during working hours, at the time of initial assignment to tasks where exposure may take place and at least annually thereafter.

PI shall provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the lab personnel's exposure. The additional training may be limited to addressing the new exposures created.

The training program shall contain at a minimum the following elements:

- An accessible copy of the regulatory text of this standard and an explanation of its contents;
- A general explanation of the epidemiology and symptoms of bloodborne diseases;
- An explanation of the modes of transmission of bloodborne pathogens;
- An explanation of the exposure control plan and the means by which the employee can obtain a copy of the written plan;
- Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;
- An explanation of the basis for selection of personal protective equipment;
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge;
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;
- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available;
- Information on the post-exposure evaluation and follow-up that the PI is required to provide for the employee following an exposure incident;
- An explanation of the signs and labels and/or color coding required by paragraph (g)(1); and
- An opportunity for interactive questions and answers with the person conducting the training session.

F. **Signs and Labels**: All work areas and containers are labeled in accordance with the provisions of the Bloodborne Pathogens Standard. The employer shall post signs at the entrance to work areas specified in paragraph (e), HIV and HBV Research Laboratory and Production Facilities, which shall bear the following legend:

(Name of the Infectious Agent)
(Special requirements for entering the area)
(Name, telephone number of the laboratory director or other responsible person.)

These signs shall be fluorescent orange-red or predominantly so, with lettering and symbols in a contrasting color.

G. **HIV, HBV, and HCV Research Laboratories**: This paragraph applies to research laboratories and production facilities engaged in the culture, production, concentration, experimentation, and manipulation of HIV and HBV. It does not apply to clinical or diagnostic laboratories engaged solely in the analysis of blood, tissues, or organs. These requirements apply in addition to the other requirements of the standard.

Standard Microbiological Practices: All regulated waste shall either be incinerated or decontaminated by a method such as autoclaving.

Special Practices

1. Laboratory doors shall be kept closed when work involving HIV, HBV or HCV is in progress.

2. Access is limited to authorized personnel. Written policies indicate that the following persons have been trained, meet specific entry and exit procedures allowing them to enter work areas and/or animal areas:

   _____
   _____
   _____
   _____
   _____

   The PI/ manager will be responsible in assuring that such authorized personnel demonstrate proficiency in practices and techniques prior to working with HIV/HBV/HCV, and that such employees have documented prior experience in the handling of human or primate pathogens and/or tissue culture before commencing work.

3. Biohazard signs are posted on all access doors when potential infectious materials/animals are in use. Locations are:

   _____
   _____
   _____
   _____

4. No work with infectious materials is done on the open bench. All activities involving other potentially infectious materials shall be conducted in biological safety cabinets or other physical-containment devices within the containment module.

5. Vacuum lines are protected with liquid disinfectant traps and HEPA filters. The filters must be checked routinely monthly and maintained or replaced as necessary.

6. All spills are immediately contained and cleaned by properly trained staff equipped to handle infectious materials. These staff members include:

   _____
   _____
   _____
   _____
   _____

7. Contaminated materials that are to be decontaminated at a site away from the work area shall be placed in a durable, leak-proof, labeled or color-coded container that is closed before being removed from the work area.

8. Hypodermic needles and syringes shall be used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles. Only needle-locking syringes or disposable syringe-needle units (i.e., the needle is integral to the syringe) shall be used for the injection or aspiration of other potentially infectious materials. Extreme caution shall be used when handling needles and syringes.

9. Certified biological safety cabinets (Class I, II, or III) or other appropriate combinations of personal protection or physical containment devices, such as special protective clothing, respirators, centrifuge safety cups, sealed centrifuge rotors, and containment caging for animals, shall be used for all activities with other potentially infectious materials that pose a threat of exposure to droplets, splashes, spills, or aerosols.

10. Any spills or accidents that result in an exposure incident are immediately reported to the laboratory PI/supervisor/manager. For large spills please contact EHS at 864-4089

H. **Medical Surveillance Program (Hepatitis B Vaccination; Post-Exposure Evaluation and Follow-up)**: The PI shall make available the hepatitis B vaccine and vaccination series to all lab personnel who have exposure, and post-exposure evaluation and follow-up to all lab personnel who have had an exposure incident. The PI shall ensure that all medical evaluations and procedures including the hepatitis B vaccine and vaccination series and post-exposure evaluation and follow-up, including prophylaxis, are:

    1. Made available at no cost.

    2. Made available at a reasonable time and place.

    3. Performed by or under the supervision of a licensed physician or by or under the supervision of another licensed healthcare professional.

    4. If the person initially declines hepatitis B vaccination but at a later date while still covered under the standard decides to accept the vaccination, the PI shall make available hepatitis B vaccination at that time.

    5. The PI shall assure that lab persons who decline to accept hepatitis B vaccination offered sign the statement in Appendix A.

6. **Post-Exposure Evaluation and Follow-up**: Following a report of an exposure incident, the PI shall make immediately available to the exposed person a confidential medical evaluation and follow-up, including at least the following elements:
    a. Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred.
    b. Identification and documentation of the source individual, unless the PI can establish that identification is infeasible or prohibited by state or local law.
    c. The source individual's blood shall be tested as soon as feasible and after consent is obtained in order to determine HBV and HIV infectivity. If consent is not obtained, the PI shall establish that legally required consent cannot be obtained.

    These post-exposure services will be furnished to you by either Watkins Health Center or Lawrence Memorial Hospital (depending upon whether you are a University employee) at no cost to you, in accordance with the Bloodborne Pathogens Standard.

    If you have any direct exposure to human blood, fluids, or tissue, immediately wash the affected body part with soap and water.

    Notify your PI or_____
    who is located_____

I. **Recordkeeping**: The PI shall establish and maintain an accurate record for each lab person with exposure, in accordance with 29 CFR 1910.1020. This record shall include:
    a. The name and social security number of the individual.
    b. Copy of the individual’s hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination.
    c. A copy of all results of examinations, medical testing, and follow-up procedures
    d. The employer's copy of the healthcare professional's written opinion.

IV. **Reporting and Evaluation of Exposure Incidents**:

A. Every individual handling material with potential bloodborne pathogens has the responsibility to report any exposure to these materials to their PI/Supervisor.

B. Any exposure to bloodborne pathogens by lab personnel that are University employees must be documented and reported to KU Human Resources using the appropriate Accident/Injury Reporting forms (1101-A form). HR and or EHS personnel may complete an evaluation of the incident.

C. Any exposure to bloodborne pathogens by lab personnel that are not University personnel (such as students or visitors) must be documented by the PI and reported to EHS. The PI and EHS may complete an evaluation of the incident.

V. Resources: For more information about the OSHA Bloodborne Pathogens Standard, Campus Policy and Procedures related to Bloodborne Pathogens, or for assistance in compliance, please contact your supervisor or PI or call EHS at 4-4089 or 4-2857. If you have any questions regarding the Bloodborne Pathogens Standard or the completion of this form please contact EHS Biosafety Officer at 4-2857.