

GUIDELINES FOR WORKING WITH HUMAN CELLS AND TISSUES IN ANIMALS

PURPOSE

The guidelines have been developed as part of the overall Emory University Biosafety Program to accomplish the following goals:

- Protect personnel from exposure to human Bloodborne pathogen (BBP), specifically those found in human cells, tissues and cell cultures;
- Prevent environmental contamination;
- Provide an environment for high quality research while maintaining a safe work place, and;
- Comply with applicable federal, state and local requirements.

REFERENCES

1. http://www.cdc.gov/biosafety/publications/bmbl5/BMBL5_appendixH.pdf
2. http://osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051
3. <http://www.ehso.emory.edu/content-manuals/BBPExposureControlPlan.pdf>

INTRODUCTION

Injection of laboratory animals with materials of human origin (primarily human tissue and human cell lines) must be done in compliance with the OSHA Bloodborne Pathogen Standard (29 CFR Part 1091.1030) and CDC-NIH Biosafety Level 2 Guidelines. Both references have the same requirements; however, the OSHA Standard was written in legal language to provide enforceable legislation.

The OSHA Bloodborne Pathogen Standard mandates the use of Universal Precautions, not reliance on testing results, to protect workers from potential exposure to bloodborne pathogens. The Standard defines Universal Precautions as: "All human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, HCV and other bloodborne pathogens", and also outlines the required training and work practices that minimize the risk of exposures. Universal Precautions are designed to minimize exposure to bloodborne pathogens by emphasizing safety practices during injection and needle disposal. This policy is a summary of relevant points from the Emory Bloodborne Pathogen Exposure Control Plan (ECP).

PROTOCOL APPROVAL

ALL IACUC protocols involving deliberate introduction of materials of human origin must be reviewed by Biosafety Officer/IHBC (www.ehso.emory.edu)

A risk assessment will be performed. Biocontainment level will be designated based on the risk assessment.

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TRAINING

ALL laboratory research personnel intending to working with materials of human origin in animals and all DAR staff who manage animals injected with materials of human origin must complete the following:

1. Animal Biosafety Training
2. OSHA bloodborne pathogen training
3. Hepatitis B vaccination accepted or declined at Employee Health Service

TRANSPORT

Cultures, tissues, or specimens of body fluids must be placed in a leak-proof container for transport. Clean, uncontaminated outer packaging eliminates the need for gloves during transport through lobbies, elevators, across the street, etc.

NOTE: Transport of syringes with needles attached is prohibited.

PERSONAL PROTECTIVE EQUIPMENT

1. Lab coats or gowns must be worn. Lab coats must not be taken home; lab coats must be sent to a laundry service.
2. Gloves must be worn when handling infected animals and when hands may contact infectious materials, contaminated surfaces, or equipment. Wearing two pairs of gloves may be appropriate for procedures where glove contamination is anticipated - if a spill or splatter occurs, the hand will be protected after the contaminated glove is removed. Gloves must be disposed of when contaminated, removed when work with potentially infectious materials is completed, and not worn outside the laboratory or animal facility.
3. Hands must be washed when gloves are removed.
4. Safety glasses and a mask or face shield are required during any procedure with material of human origin which may result in splash or splatter to the mucous membranes.
5. Slacks and closed-toe shoes are a minimum requirement (sandals, flip-flops, and open-toed shoes are not allowed).

USE OF SHARPS: (NEEDLE/SYRINGES, GLASS PASTEUR PIPETTES)

A high degree of precaution must always be taken with any contaminated sharp item, including needles and syringes, slides, capillary tubes, and scalpels. Plastic substitutes for glass Pasteur pipettes are strongly recommended.

Only needle-locking syringes or disposable syringe-needle units (i.e. needle is integral to the syringe) can be used for injection or aspiration of infectious materials. Used disposable needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal; rather, they must be carefully placed in conveniently located puncture-resistant containers used for sharps disposal. **Contaminated needles shall not be recapped** or removed unless the researcher/investigator can demonstrate that no alternative is feasible or that such action is required by a specific medical procedure. Such recapping or removal must be accomplished through the use of a mechanical device or a one-handed technique. Non-disposable sharps (example- surgical instruments) must be placed in a hard-walled container for transport to a processing area for decontamination, preferably by autoclaving.

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DISPOSAL

The user of a needle/syringe is responsible for its safe disposal into a needle box. Needle boxes are checked daily by DAR staff and, when 3/4 full, are packaged appropriately for disposal in a licensed pathological incinerator to comply with all medical waste regulations.

Animal Procedures: Cages must be opened only in a biosafety cabinet. All procedures must be conducted in the biosafety cabinet.

WORK PRACTICES

Research and DAR staff must comply with all DAR policies, including medical surveillance, access to the facility, etc. In addition, standard work practices include:

1. Personnel must wash their hands after removing gloves, handling cultures and animals, and before leaving the animal facility.
2. Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human use are not permitted in animal rooms.
3. All procedures should be carefully performed to minimize the creation of aerosols, and must be performed in the biosafety cabinet.
4. Cage identification and or grouping per DAR guidelines.

DECONTAMINATION - AFTER EXPERIMENTAL PROCEDURES:

1. All biohazardous waste should be placed in an orange bag.
2. Carcasses must be bagged and placed in the designated carcass cooler.
3. Work surfaces must be decontaminated with an appropriate disinfectant (follow DAR guidelines) after work with human-origin materials is finished and after any spill of viable materials.

DECONTAMINATION - AFTER ANIMAL HUSBANDRY PROCEDURES:

1. The removal of potentially contaminated bedding materials from animal cages must be performed in biosafety cabinets to reduce any the risk from of aerosols and airborne particulates. **Bedding will be disposed of by incineration or autoclaving as regulated biomedical waste.** Work surfaces inside the biosafety cabinet must be disinfected after use.
2. Decontamination of cages, lids, and sipper tubes and bottles – No additional decontamination procedures are needed. DAR standard animal care procedures meet or exceed requirements of [NIH Guide for the Care and Use of Laboratory Animals](#).