

# Biosafety for Animal Care Workers – Animals Containing Human Xenografts



The University of Texas at Austin

S.O.P.:	# 227-02
Title of S.O.P.:	Animal Biosafety -Human Xenografts
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## **Purpose**

To provide guidance for the protection of personnel working with animals with human xenograft transplants.

## **Overview**

Human tissue and cells have the potential to harbor a number of infectious agents. Testing may not identify all the pathogens of concern. The Institutional Biosafety Committee (IBC) has determined that animal work involving human xenografts should be conducted at Animal Biosafety Level 2 (ABSL-2) per *Biosafety in Microbiological and Biomedical Laboratories* (BMBL) 5<sup>th</sup> edition.

## **Recommendations**

### *Risk Assessment*

The Principal Investigator is responsible for conducting a risk assessment to determine the hazards associated with the human xenograft and what precautions should be taken. The assessment should provide information on any known infectious agents in the xenograft material. The risk assessment should also include special procedures, personal protective equipment (PPE) and emergency (spill/exposure) plans for animal care staff. This information should be listed in the Hazardous Animal Project Initiation Form and reviewed by all animal care personnel. The Biological Safety Officer will review the risk assessment as part of the IBC protocol review and make recommendations for the IBC to approve.

### *Signage/Cage Cards*

A sign will be posted outside the animal room that includes an ABSL-2 biohazard symbol, PPE used, entrance and exit requirements and emergency contacts. Cage cards will be marked to indicate that the animals have human xenografts.

### *Personal Protective Equipment*

Personal Protective Equipment will include at a minimum:

- Lab Coat or Gown
- Gloves
- Mask
- Safety glasses/goggles/face shields

Based on the risk assessment, additional PPE such as respirators or specific types of PPE may be required. After completing work with animals containing human xenografts:

- Remove the most contaminated items first and turn inside-out prior to disposal or laundering.
- Disinfect reusable PPE such as safety glasses and face shields with Clidox.
- Segregate re-usable clothing being laundered in a biohazard bag hamper.
- Wash hands thoroughly with soap and water after removing PPE. If a sink is not present within the room, hand sanitizer can be used before leaving the room, followed by hand washing in a corridor sink after leaving the room.

#### *Engineering Controls*

Engineering controls will include biosafety cabinets (BSC), and filter-topped cages. Safe sharp devices will be evaluated and used whenever practical.

#### *Animal Manipulation and Cage Changing*

All handling of human xenograft animals should occur within a HEPA-filtered biosafety cabinet (BSC). This includes injections, cage changes, sexing, weaning, genotyping, tumor measurement, etc. Disinfect the BSC before and after use.

#### *Decontamination/Disinfectant*

Disinfect all work surfaces and equipment areas where animal, cells, or bedding has been handled using Clidox or another appropriate disinfectant before and after use.

#### *Waste*

Animal carcasses- Animal carcasses must be disposed as biohazardous waste. Place animals found dead in a biohazard bag labeled with a biohazard sticker. Spray bag with disinfectant before removing from the animal room and being placed in the carcass refrigerator. Disposal after that will follow standard procedures.

Cage changing- When available, use a BSC. Keep the soiled bedding/waste in the cage. Place cages with the bedding into autoclavable biohazardous bags, seal the bags and spray with disinfectant before removing from the animal room. After the bags containing soiled cages has been autoclaved, the cage cleaning and bedding disposal will follow standard procedures.

Sharps containers ready for disposal- Close and spray disinfect (all outer surfaces) prior to removal from the room. Sharps containers should be staged for EHS pick-up near the carcass freezer.

#### *Emergency plans/Occupational Health*

The PI should include instructions for handling spills or exposure in the Hazardous Animal Project Initiation form. In the event of an exposure, personnel should be instructed to notify their treating physician/Occupational Health that they were working with animals with human xenografts.

*Training*

All animal care personnel should be properly trained before working with animals with human xenografts. It is the principal Investigator’s responsibility to ensure animal care staff have been trained. The ARC Director is also responsible when centralized animal care staff are in contact with animals involved in ABSL-2 studies or using infectious agents. Training should include hazards, special procedures, personal protective equipment (PPE) and emergency (spill/exposure) plans for animal care staff. Training will be **documented**.

**References**

Human Xenograft Transplantation in Animal Research: Risk Assessment and Hazard Control for Animal Care Workers. *Contemporary Topics*. American Association for Laboratory Animal Science. Vol. 42, No 6. November 2003.

Biosafety in Microbiological and Biomedical Laboratories, 5<sup>th</sup> edition. CDC and NIH. GPO, 2009.

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Director, Environmental Health and Safety

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