Vanderbilt University Institutional Biosafety Committee (IBC) Policy:
Best Practices for Use of Macaque Tissues, Body Fluids and Cells in Basic Research Applications

All basic research activities involving the use of unfixed nonhuman primate-derived materials (regardless of species) requires registration with the Institutional Biosafety Committee and will most likely require biosafety level 2 (BSL-2) containment practices for these activities. Work with macaque-derived materials presents an additional infectious disease exposure risk that can be life-threatening. This policy is intended to raise awareness of this exposure hazard and strengthen communication of this risk to collaborators that may handle these materials.

Background

Macaque monkeys are sometimes used in research applications. Examples of those commonly used are bonnet (Macaca radiata), cynomolgus (*M. fascicularis*) and rhesus (*M. mulatta*) macaques. Macaques are thought to be the natural host for Herpes B virus (aka Macacine herpesvirus 1). Herpes B virus is carried asymptomatically in macaques but may be fatal if transmitted to humans. Based on studies and recommendations published following a fatal exposure incident in 1997 (see first link under "Resources"), ALL macaques should be regarded as potentially infected with Herpes B virus. Herpes B virus exposure risk is generally recognized by those who work with live macaques. However, it is equally important for individuals handling biologically active macaque body fluids, cells and tissues to be aware that they, too, are at risk of exposure. These best practices have been written to ensure that those working with macaque fluids/cells/tissues in a research lab environment are informed of the risk and handle these materials only after implementing appropriate biocontainment practices to fully protect themselves and others in the lab area.

Herpes B Virus Exposure Risk Defined (*excerpts from CDC's B Virus website*)

> *B virus infection in humans usually occurs as a result of bites or scratches from macaques—a genus of Old World monkeys that serve as the natural host—or from direct or indirect contact of broken skin or mucous membranes with infected monkey tissues or fluids. The virus can be present in the saliva, feces, urine, or nervous tissue of infected monkeys and may be found in cell cultures derived from infected monkeys.*
>
> *Infection with B virus is extremely rare in humans. When it does occur, the infection can result in severe brain damage or death if the patient is not treated soon after exposure.*

To be consistent with counterpart policies that apply to those who work with/around live macaques, ALL macaque body fluids, cells and tissues that are biologically active* are to be regarded as a Herpes B virus exposure risk. Enrollment in the Herpes B Virus Awareness Program is required for those handling these materials.

*NOTE: Tissue residues/slices that have been formalin-fixed, such as those for immunohistochemistry purposes, would not be considered biologically active. However, denser tissues such as limbs or organs should be considered biologically active.

Controlling Herpes B Virus Exposure Risk at Vanderbilt: Herpes B Virus Awareness Program

Under the Program (which is primarily designed for those exposed to macaques in the animal research environment), personnel who are identified as having exposure risk for Herpes B virus through their work with biologically active macaque body fluids, cells and tissues, will:

1. be enrolled in the Herpes B virus medical surveillance program;
2. receive an awareness training about Herpes B virus exposure prevention/reduction associated with their specific activities;
3. be provided with access to an exposure response kit appropriate for their work environment.

For those whose exposure risk is associated solely with the use of viable macaque-derived materials in a lab environment, the above elements will be addressed in the context of that setting. These activities must be registered with and approved by the IBC to further support participation in the Program. Based on current CDC guidelines, lab activities involving ALL biologically active non-human primate-derived body fluids, cells and tissues (regardless of species origin) should be carried out using BSL-2 containment procedures. Therefore, personnel performing such procedures need to complete training commensurate for working at BSL-2. (See the EHS Biosafety training table.)

Risk Awareness and Communication Responsibilities of Vanderbilt Research Teams

- Internal Transfer to VU Labs: The submitting research team must notify the Biosafety Officer of their plans to submit materials to a VU research or core lab before transferring materials. This will allow VU Biosafety to support the receiving lab in implementing the safety practices appropriate for the planned analyses, and to facilitate enrollment in the Herpes B Virus Awareness Program if needed.
- Principal Investigators, Lab Managers and Core Managers are ultimately responsible for assuring that enrollment occurs and is completed before their personnel receive or handle any Herpes B virus risk materials.
- Transfer to Collaborators Outside of VU: The submitting research team must inquire with the recipient lab about their ability to receive Herpes B virus risk materials before sending such materials and keep documentation of these communications. (It is strongly recommended that the Biosafety Officer be copied on these communications.) Please note that any shipment of biologically-active macaque-derived body fluids, cells or tissues should be packaged and shipped as a Dangerous Good (Biological Substance, Category B). Personnel preparing such a shipment must be currently trained and certified for that task. VU Biosafety is qualified to prepare these shipments and can do so with ample notice. A courtesy letter must be included in the package identifying the materials as a Herpes B virus exposure risk, and a copy of this letter should be maintained with the shipping record. See attached example at end of this document.

Institutional Biosafety Committee (IBC) Registration

The basic research use of all viable nonhuman primate-derived materials falls under the purview of the IBC. All research teams that are manipulating body fluids and tissues in their lab outside of terminal procedures associated with an approved animal protocol must register this activity with the IBC. This action will help assure that the activities being carried out are assessed for exposure control measures, and all personnel who may be handling materials are captured for enrollment in the Herpes B Virus Awareness Program.

Herpes B Exposure Control Resources

- Fatal Cercopithecine herpesvirus 1 (B Virus) Infection Following a Mucocutaneous Exposure and Interim Recommendations for Worker Protection
- CDC's Herpes B Virus website
- Health Canada's Herpes B Virus Pathogen Safety Data Sheet
- Recommendations for Prevention of and Therapy for Exposure to B Virus (Cercopithecine Herpesvirus 1)
- National B Virus Resource Center

Policy Endorsement & Revision

This policy was originally reviewed and approved by the Vanderbilt University (VU) IBC and Vanderbilt University Medical Center (MC) Institutional Biosafety Committees (IBCs) on April 24, 2018 for adoption and endorsement.

This policy was rewritten as a Vanderbilt University IBC Policy in November 2023 to reflect current responsible parties, institutional guidance documents and biosafety standards. The policy was endorsed by the VU Institutional Biosafety Committee on December 12, 2023.

The VU IBC reviewed proposed edits prepared by VU Biosafety and endorsed this policy on December 9, 2025. A summary of the revisions includes the following:

- Updated hyperlinks
- Updated contact information

The policy will be reviewed periodically when determined appropriate by the Biosafety Officer for purposes of compliance with regulatory requirements.

Biological Material Risk Notification:
Macaque Tissues, Body Fluids and Cells in Basic Research Applications

This document is being included with this macaque-derived materials shipment to assure that you are aware of the Herpes B virus exposure risk associated with these viable biological materials. To ensure your safety, please review this information and consult with your Institutional Biosafety Officer (BSO) or Veterinarian before handling these materials.

Background

Macaque monkeys are sometimes used in research applications. Examples of those commonly used are bonnet *(Macaca radiata)*, cynomolgus *(M. fascicularis)* and rhesus *(M. mulatta)* macaques. Macaques are thought to be the natural host for Herpes B virus (aka *Macacine herpesvirus 1*). Herpes B virus is carried asymptomatically in macaques but may be fatal if transmitted to humans. Based on studies and recommendations published following a fatal exposure incident in 1997, ALL macaques (and their viable fluids and tissues) should be regarded as potentially infected with Herpes B virus. Herpes B virus exposure risk is generally recognized by those who work with live macaques. However, it is equally important for individuals handling biologically active macaque body fluids, cells and tissues to be aware that they, too, are at risk of exposure.

Herpes B Virus Exposure Risk Defined (*excerpts from Centers for Disease Control's (CDC) B Virus website*)

B virus infection in humans usually occurs as a result of bites or scratches from macaques—a genus of Old World monkeys that serve as the natural host—or from direct or indirect contact of broken skin or mucous membranes with infected monkey tissues or fluids. The virus can be present in the saliva, feces, urine, or nervous tissue of infected monkeys and may be found in cell cultures derived from infected monkeys.

Infection with B virus is extremely rare in humans. When it does occur, the infection can result in severe brain damage or death if the patient is not treated soon after exposure.

Herpes B Virus Exposure Control

Based on current CDC guidelines, lab activities involving ALL biologically active non-human primate-derived body fluids, cells and tissues (regardless of species origin) should be carried out using BSL-2 containment procedures at a minimum. Furthermore, to be consistent with recommendations that are routinely followed for live animal research, personnel should receive specific training regarding Herpes B virus exposure prevention as outlined in Recommendations for Prevention of and Therapy for Exposure to B Virus (Cercopithecine Herpesvirus 1).

If you have questions regarding this materials shipment or communication, please contact one of the following:

VU Submitter & Contact Number	
VU EHS Biosafety Team	vubiosafety@vanderbilt.edu