

Guidance for Laboratory Work with Non-Human Primate (NHP)-derived Materials

Non-human primate (NHP), which include simians (monkeys and apes) and prosimians (e.g., lemurs), may carry zoonotic microbial agents that can be transmitted to and cause a disease in humans. Some examples are depicted in the table below (from [Occupational Health and Safety in the Care and Use of Nonhuman Primates](#)).

Viruses	Bacteria	Metazoan Parasites	Protozoan Parasites
Macacine alphaherpesvirus 1 (Herpes B Virus)	<i>Burkholderia pseudomallei</i>	<i>Hymenolepis nana</i>	<i>Balantidium coli</i>
Foamy virus	<i>Campylobacter</i> spp.	<i>Oesophagostomum</i> spp.	<i>Cryptosporidium</i> spp.
Simian retrovirus (Type D)	<i>Mycobacterium tuberculosis</i>	<i>Strongyloides</i> spp.	<i>Entamoeba histolytica</i>
SV40	<i>Mycobacterium bovis</i>	<i>Trichuris</i> spp.	<i>Giardia intestinalis</i>
SIV	<i>Mycobacterium leprae</i> (also known in mangabeys)	<i>Enterobius vermicularis</i>	<i>Plasmodium</i> spp.
Pox viruses	<i>Leptospira</i> spp.	<i>Enterobius vermicularis</i>	<i>Trypanosoma cruzi</i>
Yellow fever	<i>Salmonella</i> spp.		
Dengue	<i>Shigella</i> spp.		
Ebola	<i>Yersinia pseudotuberculosis</i>		
Hepatitis A and B viruses	<i>Yersinia enterocolitica</i>		

The most often used NHP in medical research, macaque monkeys, can potentially carry Macacine alphaherpesvirus 1 or more familiarly known as Herpes B virus. Even though Herpes B infection in macaques is usually symptom-free or only causes mild oral lesion, in humans, the infection can be fatal when untreated.

Herpes B cases in humans are extremely rare, only about 50 cases have been reported since 1932, and these cases resulted from direct interactions with macaques (e.g., bites and scratches), mucosal exposure to tissue, body fluids and excrements (e.g., eye exposure to fecal materials), and percutaneous injury from a contaminated object. Relative to the prevalence of Herpes B virus in macaque population, the rate of laboratory-acquired infections is very low.

Because of the severity posed by Herpes B virus infection, all NHP-derived materials (both primary and commercially available materials) must always be considered **potentially infectious** and handled with strict **BSL-2 practices, engineering controls, and facilities with added barrier precautions** that include:

- **Using a biosafety cabinet or other physical barrier (e.g. centrifuge with aerosol-tight feature)** when handling NHP materials.
- **Replacing glass and sharp tools** with non-glass or engineered sharp alternatives.
- **Decontaminating** work surfaces with an appropriate disinfectant (e.g. 10% dilution of household bleach) at the end of work session and immediately when there is a spill.
- **Disposing of research materials and waste** through the infectious/biohazardous waste stream.
- **Wearing proper lab attire and personal protective equipment** (laboratory coats, gloves, and eye protection), with face shield worn over safety glasses/goggles.

For further guidance and questions, reach out to EHRS-Biosafety by email (ehrsbio@temple.edu) or phone (215-707-2520).