

Name: Cynomolgous Macaque

BSL: 2+

1. Mode of Transmission to Humans (e.g. inhalation, inoculation, mucous membrane exposure, etc.):

PRIMARY HAZARDS: Ingestion; accidental parenteral inoculation; droplet exposure of the mucous membranes of the eyes, nose, or mouth; inhalation

Macacine herpesvirus 1 (also called Herpes B virus or B virus) occurs in macaque monkeys as a latent infection and is reactivated spontaneously resulting in shedding of virus in saliva and other body fluids; during periods of stress, higher rates of virus shedding occur; transmission to man occurs after a monkey bite or by direct or indirect contact / exposure of naked skin (broken or mucous membranes) to infected saliva, tissues, body fluid including feces, and cell cultures; splashes or droplets of infected fluids to eye; transmission via aerosol exposure of B virus is likely to be minimal; human-to-human transmission has been documented in one case.

2. Description of the Human Disease associated with this agent or vector (including instances of laboratory acquired infections):

B virus causes an acute, usually fatal, ascending encephalomyelitis; febrile onset with headache, vesicular skin lesions at site of exposure and variable neurological patterns; involvement of the respiratory centre and death 1 day to 3 weeks after onset of symptoms; occasional recoveries with considerable residual disability INCUBATION PERIOD: 3 days up to 4 weeks

Although B virus infection in humans is extremely rare, when it does occur, it is fatal in about 70% of untreated patients. <http://www.cdc.gov/herpesvirus/firstaid-treatment.html>

B virus has occurred in veterinarians, laboratory workers and others handling Eastern Hemisphere (Old World) monkeys or tissue cultures derived from monkeys; 31 reported cases with 68% mortality; B virus is a naturally occurring alpha herpes virus infecting free - living or captive macaques; It is a biological counterpart of herpes simplex virus in humans.

Many other general infectious zoonotic agents could be transferred to humans while working with macaques: such as Mycobacterium tuberculosis (TB), giardia, entomeoba, balantidium, influenza, filoviruses, poxviruses, shigella, salmonella, streptococcus, mycobacterium.

3. Personnel Protection Required (minimum requirement):

	Laboratory	Vivarium		Laboratory	Vivarium
Safety Glasses	<input type="checkbox"/>	<input type="checkbox"/>	Shoe Covers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lab Coat	<input type="checkbox"/>	<input type="checkbox"/>	Face Shield	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Cap/Head Cover	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Goggles	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mask	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Disposal Gowns	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Other - Describe: Double gloves and sleeve protectors required when in close proximity of the monkey. When hand capturing a monkey or where unforeseen procedure increases the possibility of escape, protective leather gloves, gauntlets and long sleeves are required. Face shield and safety glasses may be substituted for goggles. N95 respirator (with fit test and medical clearance) is only required for aerosol generating procedures (e.g. dentistry).

4. Engineering Controls (minimum requirement):

	Laboratory	Vivarium		Laboratory	Vivarium
Autoclave	<input type="checkbox"/>	<input type="checkbox"/>	Engineered Sharps Protection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
BioSafety Cabinets	<input type="checkbox"/>	<input type="checkbox"/>	Sharps Containers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Closed Centrifuge Rotors	<input type="checkbox"/>	<input type="checkbox"/>	Closed Centrifuge Tubes	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			

Other - Describe:

Direct handling of macaques must be minimized as much as possible and must be performed after the animal has been chemically immobilized with ketamine or another suitable agent.
When handling macaque fluids and tissues, read the ECP for Animal Primary Cells, Tissues and Body Fluids found in the ATTACHMENT section of your BUA.

5. Disposal Procedures:

Liquids: add bleach to a final concentration of 10% bleach solution (Clorox or other bleach with Cal EPA registration number), let sit for 30 minutes, dispose of in sink (best while running water). Aspirator flasks: bleach is added to aspirator flasks initially so that the final concentration will be 10%. These must be emptied at least weekly.

Solids: disposed of in labeled, double red biohazard bags held in labeled, rigid, covered containers. Transport to biohazard collection area in a closed rigid container for final disposal by EH&S. These must be emptied at least weekly.

6. Disinfection Procedures:

Surface: 10% household bleach solution made up fresh daily (Clorox or other bleach with Cal EPA registration number) allowing for 5-minutes of contact time.

OR

Surface: AIRX 44 ACE allowing for 5-minutes of contact time.

7. Recommended/Required Vaccinations or other Medical Surveillance:

Required: Contact Occupational Health Nurse at rsawtelle@ucsd.edu to schedule an Occ. Health visit/training.
Baseline TB testing and verification of measles immunity/immunization. Annual TB testing. Respirator medical screening & fit testing.

8. Employee Exposures- first aid procedures:

Initial first aid measures with IMMEDIATE cleansing and rinsing of exposed areas is of the utmost importance in preventing infection with B virus. Wounds that have been cleansed within 5 minutes of exposure and that have been cleansed for at least 15 full minutes are less likely to lead to B virus infection. Delay in cleansing or inadequate cleansing of the wound increases the risk of infection. After initial first aid, immediately seek medical evaluation to determine the need for antiviral treatment. The work area must have a B virus Post-Exposure First Aid Kit containing the recommended cleanser and first aid supplies, along with a copy of this exposure control plan and a B virus Information Sheet.

- a. Eye exposure from splash or aerosols - Immediately rinse for a minimum of 15 minutes in eye wash or flush area with large amounts of water.
- b. Skin exposure - Immediately wash and scrub thoroughly with povidone-iodine or chlorhexidine flushing with large amounts of running water for a minimum of 15-20 minutes. After cleansing, immediately seek medical evaluation to determine the need for antiviral treatment.
- c. Needle stick and/or sharps exposure - Immediately wash and scrub thoroughly with povidone-iodine, chlorhexidine, or detergent soap, flushing with large amounts of running water for a minimum of 15-20 minutes. After cleansing, immediately seek medical evaluation to determine the need for antiviral treatment.
- d. Contamination of clothing - Immediately remove the contaminated clothing and place in biohazard bag, shower with the emergency douse shower using povidone-iodine, chlorhexidine, or detergent soap, flushing with large amounts of water for a minimum of 15-20 minutes, and put on clean clothes.
- e. A bite kit must be available, managed by the Animal Care Program. Be familiar with where it is stored and what is in it. Be sure it is on site prior to handling macaques.
- f. Spill or release - Monday through Friday, 8a - 4:30p call EH&S; after hours call Campus Police

9. Employee Exposure - seek medical follow-up from the following medical providers: (TAKE THIS ECP WITH YOU)

24-hour walk-in service: Hospital Emergency Room Or nearest Medical Center Emergency Room

Monday - Friday, 8a - 4:30p go to Center for Occupational and Environmental Medicine (COEM)

Call your campus Occupational Health contact to determine if a follow up visit is required. Most exposures will require a visit to Occupational Health.

Post-exposure medical evaluation is required for all exposures, immediately after completion of the first aid measures. Prophylactic treatment with valacyclovir (Valtrex) should be considered; the B virus status of the monkey should be determined.

CDC website for Herpes B first aid and medical treatment guidelines: <http://www.cdc.gov/herpesbvirus/firstaid-treatment.html>

10. Report All Injuries, Illnesses, and Exposures to EH&S:

Report the injury incident to the employee's immediate supervisor and complete the campus injury report form

11. Required Biosafety Training:

Laboratory specific training on hazards, exposure evaluations, and the required precautions for experimental procedures used with this agent - provided by Principal Investigator

12. Lab specific instructions: