DARTMOUTH
ENVIRONMENTAL HEALTH & SAFETY
Biological Safety Program

Macaque Monkey Materials Exposure Response

PURPOSE

Respond to exposures to tissues, body fluids, cell cultures, and other materials sourced from macaque monkeys (genus *Macaca*), herein referred to as "macaque materials". Herpes B virus is endemic in macaques, therefore all macaque materials must be considered potentially infectious.

BACKGROUND

Herpes B virus (B virus, monkey B virus, *Macacine herpes virus*, *Cercopithecinae herpes virus 1*, CHV-1, *Herpes simiae virus*, *Herpesvirus simiae*) in macaques is similar to herpes simplex in humans. Infected monkeys often have no or mild symptoms during active infection, and latent virus may reactivate, resulting in shedding of infectious virus with or without symptoms. The most common sources of virus are macaque mucosal excretions, central nervous system tissue, cerebrospinal fluid, and primary kidney cells. While generally innocuous in macaques, Herpes B can cause fatal encephalomyelitis in humans. Transmission is relatively rare but untreated infections have a mortality rate of 70-80%, making infection a low probability/high consequence event. Early first aid and assessment-based treatment are key. No vaccine is available.

EMERGENCY EXPOSURE KIT:

Labs working with macaque materials will be provided an emergency exposure kit containing

- Povidone-iodine (Betadine) hand wash
- Timer
- 3x4" sterile non-stick pads (3)
- 4" bandage roll
- 1" paper tape
- Medical Alert Card
- This SOP (two copies)

Sections:

Section I: First Aid Response

a. ***Cleansing the site <u>within 5 minutes of exposure</u> is the most important step for preventing transmission.*** *Ask someone nearby to report the exposure while you are cleaning the site.*

Skin Exposure (splash, bite, laceration, needlestick, puncture, etc.)

1. Open the Laboratory Exposure Emergency Kit.
2. Set timer for 15 minutes.
3. Gently scrub the wound/exposure area for 15 minutes using povidone-iodine detergent. Massage deep wounds to facilitate deep cleaning.
4. Run water over the wound/exposure area for an additional 15-20 minutes.
5. Apply non-stick pad and secure with loosely wrapped gauze and tape.

Mucous Membrane Exposure (splash or aerosol to eyes, mouth, or nose)

1. Open the Laboratory Exposure Emergency Kit.
2. Set timer for 15 minutes.
3. Irrigate the exposed site for 15 minutes with rapidly flowing water at an eye wash station.

b. Notify your supervisor or principal investigator (PI) of the lab and the Dartmouth Biosafety Officer (603-646-1762) of all possible exposures. If they are not immediately available, try again later – do not delay further medical care.

c. Proceed to next section.

Section II: Medical Evaluation

a. Seek medical attention immediately after cleaning the affected area. Take this SOP and your Medical Alert Card to:

> Between 7:30 a.m. – 4:30 p.m.: Dartmouth-Hitchcock Occupational Medicine
> DHMC, Faulkner Building, Level 4L (near parking garage): 603-653-3850
>
> After hours: DHMC Emergency Department: 603-650-7000

b. Notify the healthcare provider that this is an exposure to macaque materials that have the potential to carry Herpes B virus and give him/her your Medical Alert Card and a copy of this SOP. **Two copies are included in the exposure kit; when seeking medical care keep one copy with you.** Additional copies can be made from it if needed. *Point your healthcare provider Section VI of this SOP.*

c. If being seen in the Emergency Department, ask the ED provider to page the Occupational Health nurse on-call through the hospital operator: (603) 650-5000.

d. The ED or Occupational Medicine clinician will: 1) assess risk, 2) determine immediate management, 3) educate the patient regarding symptoms, and 4) consider post-exposure prophylaxis. Immediate management may include culture of the wound or exposure site and drawing blood for serologic analysis. These samples will be sent to the DHMC Sample Processing Laboratory for processing and mail-out. Follow-up serology may be drawn 14 to 21 days post-exposure by Occupational Medicine and sent to the DHMC Sample Processing Laboratory for processing and mail-out.

e. Samples must be collected, stored, and submitted as described in Sections III and VI of this SOP.

Section III: Sample Collection/Submission

a. Patient Samples:

Patient's whole blood and cultures will be sent to the DHMC Clinical Laboratory for processing with a completed DHMC (LB) Miscellaneous Form and National B-Virus Resource Center *Sample Submission Form* (see Section VI of this SOP).

The Patient's "A" number will be on the (LB) Miscellaneous Form, which will ensure the samples are paid through Workers' Compensation.

b. Primate Samples:

If any of the NHP material involved in the exposure is available, it will be collected by the PI of the research lab, or designee, and sent to the DHMC Laboratory for processing and mail-out.

If tracing the NHP sample back to the animal is possible, the PI, or designee, will immediately contact the supplier to request testing of the monkey. Any information regarding the source should be immediately communicated to Occupational Medicine, including whether the monkey is known to have carry any other infectious diseases (SIV, HIV, hepatitis, etc.).

If testing the monkey within 24 hours of the exposure is possible, samples will be drawn and sent from the original institution.

c. Sample Processing:

The DHMC Sample Processing Laboratory will spin down the human blood samples and separate the serum into appropriately labeled vials. The serum samples and culture tubes will be placed into a -70C freezer awaiting mail-out.

The Mail-Out technician will process the paperwork and notify the National B-Virus Resource Center. The National B-Virus Resource Center *Sample Submission Form* must be mailed out with the samples (see Section VI of this SOP).

Samples received at the DHMC Lab before 2:30 p.m. Monday to Friday will go out the same day; those received after 2:30 p.m. will be shipped the next day. Samples collected on Saturday or Sunday will be shipped out on Monday. *Samples shipped on Friday for a Saturday Delivery need to be clearly marked "Saturday delivery" on the outside of the shipping container.*

Refer to the National B-Virus Resource Center *B-Virus Exposure Mini-Protocol* and *Recommended Sample Collection, Storage, and Shipment* for additional supply, sample processing and handling procedures (see Section VI of this SOP).

Section IV: Reporting Forms

Within 24 hours, the exposed individual and supervisor must complete the following reports. *Electronic submission is best for the most up-to-date forms*; paper copies are included after this page if needed.

a. Biohazard Incident Report Form **AND** Risk Management WC Injury Report
Both forms with instructions are at
http://www.dartmouth.edu/~ehs/biological/reporting.html

b. NH Dept. of Labor Employers First Report of Injury
http://www.nh.gov/labor/forms/first-report-injury.htm

c. NH Dept. of Labor Notice of Accidental Injury or Occupational Disease
http://www.nh.gov/labor/documents/occupational-disease.pdf

d. Permission to Send or Permission to Share Forms (as applicable; available from healthcare provider)

Section V: Follow-Up

Occupational Medicine will be responsible for scheduling follow-up care, sample collection, and treatment of personnel as indicated. If you have questions about these steps, call Occupational Medicine at (603) 653-3850.

If applicable, the Dartmouth Biosafety Officer will follow up with the PI and the original institution that houses the NHP regarding blood collection from the NHP for serologic monitoring based on discussions with Occupational Medicine.

Details of follow-up will vary based on the circumstances of the exposure.

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Section VI. Information for Healthcare Staff

a. Instruction Letter to Emergency Department Physicians/Staff

b. Cohen JI, Davenport D, et al. "*Recommendations for Prevention of and Therapy for Exposure to B Virus*", Clinical Infectious Disease vol 35, pp 1191-1203, 2002.
https://biotech.gsu.edu/virology/PDFs/2002%20B%20Virus%20Guidelines.pdf

c. National B-Virus Resource Center *Sample Submission Form*
https://biotech.gsu.edu/virology/PDFs/2015%20Submission%20Form.pdf
Filling out electronically is best; a paper copy is included if needed.

d. DHMC Response Key for National B-Virus Resource Center Sample Submission Form
For reference if filling out the Sample Submission Form on paper.

e. National B-virus Resource Center *B-Virus Exposure Mini-Protocol*
https://biotech.gsu.edu/virology/PDFs/2017_Mini_SOP.pdf

f. National B-Virus Resource Center *Recommended Sample Collection, Storage, and Shipment*
https://biotech.gsu.edu/virology/PDFs/2012%20Sample%20Collect%20&%20Shipmt.pdf

g. DHMC Post –Exposure Macaque/Herpes B Protocol Discharge Instructions