

## Exposure Response Plan for Handling Macaque Specimens

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### Background Information:

B virus infection is caused by the zoonotic agent, *Macacine herpesvirus-1*, commonly found among macaques—a genus of Old World monkeys that serve as the natural host. B virus infection in macaques results in a disease similar to herpes simplex virus infection in humans. B virus infection in macaques is usually symptom-free or causes only mild disease, but in humans the infection can be fatal. Reported cases of infection in humans are very rare; since the identification of the virus in 1932, there have only been 50 documented human infections by B virus, 21 of which were fatal. Most of these infections have resulted from animal bites or scratches or from infectious materials entering broken skin (e.g. needlestick or cut). Although B virus infection in humans is extremely rare, when it does occur, it is often fatal unless treated right away—about 70% of untreated patients die of complications associated with the infection.

B virus is classified as a select agent, with the potential to pose a threat to public health and safety, by the U.S. Public Health Service, Department of Health and Human Services.

On external surfaces, B virus is susceptible to 1% sodium hypochlorite, 70% ethanol, 2% glutaraldehyde, and formaldehyde. The virus can also be inactivated by heat treatment at 50°–60°C for at least 30 minutes, by lipid solvents, by exposure to acidic pH, and by detergents. B virus can remain viable in monkey CNS tissue and saliva and in monkey kidney cell cultures. The virus can also survive up to 7 days at 37°C or for weeks at 4°C, and it is stable at –70°C. Although survival studies under conditions of virus desiccation (i.e., dry surfaces) have not been performed, it is presumed that survival times will be comparable to those of other mammalian herpesviruses (with typical survival times of 3–6 hours).

**Vaccine:** There are no vaccines available for B virus. Experimental vaccines have been evaluated in animal models, but none are being considered for human trial.

**Signs and Symptoms of Disease:** Symptom presentation can include the following:

- Flu-like illness with fever, chills, myalgias, headache, lethargy, nausea
- Appearance of symptoms near the site of exposure with a vesicular rash
- Tingling, itching, numbness or pain
- Peripheral or central nervous system symptoms including paresthesias, headache, confusion, diplopia, dysphagia, cranial nerve palsies, etc.
- The incubation period for infection in humans after an exposure to B virus ranges from 2 days to 5 weeks (typically 5-21 days).

**Work Precautions:** Handling of secretions or tissues from Macaques must be done only by experienced, trained individuals who adhere to BSL-2 facilities and work practices, with the following enhancements:

- All manipulations of unfixed materials is to be done in a biological safety cabinet (BSC).

- Use of eye and face protection, such as surgical mask and safety glasses, in addition to standard gloves and lab coat.

### **Exposure Incident**

#### **Immediate Action by Route of Exposure:**

- 1) Skin exposure (where the skin is broken): Needlestick or contact between non-intact skin and potentially infectious materials, wash the wound immediately with soap and water, treat with antiseptic effective against viruses (i.e., Betadine or similar povidone-iodine, or with chlorhexidine). Proceed to medical evaluation.
- 2) Irrigate the wound with running water for 15-20 minutes.
- 3) Eye or other mucous membrane exposure: flush extensively with water or other non-hazardous fluid as quickly as possible after the exposure. Proceed to medical evaluation.

**Reporting Exposure Incidents:** All exposure incidents must be reported immediately to the Principal Investigator/ lab supervisor and seek immediate medical evaluation. Whenever there is an accident involving potentially infectious materials, report to the Biological Safety Officer. **Do not delay** immediate action or medical evaluation to make a report.

#### **When an injury NOT considered an Exposure:**

- A splash with a potentially contaminated fluid, but the fluid comes in contact only with intact skin, and not mucous membranes or cuts/abrasions in the skin. The area should still be washed thoroughly.
- A cut or scratch from an item that is known to be disinfected (e.g., autoclaved items) or is not reasonably expected to be contaminated by macaque tissue, fluid or waste products. The area should still be washed thoroughly.

#### **Medical Evaluation and Follow-up:**

Following the exposure and immediate actions stated above, faculty and staff should contact Occupational Medicine at **541-737-7566** and then call the Corvallis Clinic during business hours at **541-753-1785 or 1-866-209-7711** after business hours. Occupational Medicine will serve as a liaison with off-campus medical providers. Student workers should be evaluated at Student Health Services as soon as possible by the Occupational Health Physician” to Student workers should be evaluated at Student Health Services as soon as possible by a clinician who will consult with Occupational Health Physician.

#### **Post-exposure Prophylaxis:**

Based on the circumstances, medical professionals may order drug prophylaxis.

- For exposed persons who do not receive prophylaxis: follow-up exams visits should occur at 1 and 3 weeks following initial exposure AND at any point if there is a change in clinical status of the exposed person.
- For exposed persons who do receive prophylactic treatment: follow-up visits should occur at 1, 2 and 6 weeks following initial exposure AND at any point if there is a change in clinical status of the exposed person. A final convalescent serum sample should be obtained at 3 months.
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#### **At each follow-up visit:**

- Evaluate wound

- Review for signs and symptoms regarding Herpes B virus infection
- Evaluate compliance with prophylactic medication (if given)
- Patient should be asked whether measures have been taken to prevent further exposures