

## **Biological Agent Reference Sheet (BARS)**

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## BIOLOGICAL AGENT REFERENCE SHEET

### Japanese Encephalitis Virus (JEV)

CHARACTERISTICS	
<i>Morphology</i>	Single stranded, positive sense RNA, enveloped, 40-50 nm diameters. Family <i>Flaviviridae</i> . Japanese encephalitis (JE, Asia) is the prototype member of Japanese encephalitis antigenic (serologic) complex which also contains St. Louis encephalitis virus (SLE, North America), Murray valley virus (MVE, Australasia), and West Nile virus (WN).
<i>Growth Conditions</i>	Cell culture.

HEALTH HAZARDS	
<i>Host Range</i>	Humans, pigs, and wading birds, cattle, horses, bats and reptiles
<i>Modes of Transmission</i>	Mosquito bites. <i>Culex tritaeniorhynchus</i> (major epidemic vector).
<i>Signs and Symptoms</i>	Sudden onset of fever, headache, and vomiting. Other: Mental status changes, focal neurologic deficits, generalized weakness, and movement disorders may develop over the next few days. Case fatality ratio is ~20%-30%
<i>Infectious Dose</i>	Unknown.
<i>Incubation Period</i>	Usually 5-15 days

MEDICAL PRECAUTIONS / TREATMENT	
<i>Prophylaxis</i>	Avoid mosquito bites. Use insect repellent (containing DEET, picaridin, IR3535, and oil of lemon eucalyptus and para menthane-diol products) when travelling to countries with JEV. Wear long sleeves and pants. Stay in places with air conditioning or that use window and door screens.
<i>Vaccines</i>	The Ixiaro vaccine is licensed and available in the United States.
<i>Treatment</i>	No specific antiviral treatment is available. Treatment is limited to support therapy and management of complications.
<i>Surveillance</i>	Monitor for symptoms, serological studies (detection of immunoglobulin M and G antibodies) or isolation of virus from blood, CSF or other body fluid.
<i>Emory Requirements</i>	Report all exposures.

LABORATORY HAZARDS	
<i>Laboratory Acquired Infections (LAIs)</i>	22 cases reported up to 1980 and no fatalities
<i>Sources</i>	Contact with blood, cerebrospinal fluid, tissues, infected arthropods; needle stick, inhalation

SUPPLEMENTAL REFERENCES	
<i>Canadian MSDS</i>	<a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/msds173e-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/msds173e-eng.php</a>
<i>BMBL: 5<sup>th</sup> Edition</i>	<a href="http://www.cdc.gov/OD/ohs/biosfty/bmb15/BMBL_5th_Edition.pdf">http://www.cdc.gov/OD/ohs/biosfty/bmb15/BMBL_5th_Edition.pdf</a>
<i>CDC Guidelines</i>	<a href="http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5901a1.htm">http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5901a1.htm</a>
<i>WHO</i>	<a href="http://www.who.int/mediacentre/factsheets/fs386/en/">http://www.who.int/mediacentre/factsheets/fs386/en/</a>

CONTAINMENT REQUIREMENTS	
<i>BSL-3</i>	All work involving infectious or potentially infectious material, including, but not limited to infected tissue cultures, animals, or arthropods <i>JEV live-attenuated vaccine may be handled in BSL-2.</i>
<i>ABSL-3</i>	All work involving infectious or potentially infectious material, including, but not limited to infected tissue cultures, animals, or arthropods

SPILL PROCEDURES	
<i>Small</i>	Notify others working in the lab. Allow aerosols to settle. Don appropriate PPE. Cover area of the spill with paper towels and apply an EPA registered disinfectant, working from the perimeter towards the center. Allow 30 minutes of contact time before disposal and cleanup of spill materials. Decontaminate before disposal: steam sterilization, incineration, chemical disinfection
<i>Large</i>	Contact Emory's Biosafety Officer (404-727-8863), the EHSO Office (404-727-5922), or The Spill Response Team (404-727-2888).

EXPOSURE PROCEDURES	
<i>Mucous membrane</i>	Flush eyes, mouth or nose for 15 minutes at eyewash station.
<i>Other Exposures</i>	Wash area with soap and water for 15 minutes.
<i>Reporting</i>	Immediately report incident to supervisor, complete an employee incident report in PeopleSoft.
<i>Medical Follow-up</i>	<b>7am-4pm (OIM):</b> EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)
	<b>After Hours:</b> OIM NP On Call 404-686-5500 PIC# 50464
	<b>Needle Stick (OIM):</b> EUH (404-686-8587) EUHM (404-686-2352)
	<b>Yerkes:</b> Maureen Thompson Office (404-727-8012) Cell (404-275-0963)

VIABILITY	
<i>Disinfection</i>	Virus can be inactivated with 70% ethanol, 2% glutaraldehyde, 3-8% formaldehyde, 1% sodium hypochlorite, iodine, phenol iodophors and organic solvents/detergents.
<i>Inactivation</i>	Virus is sensitive to heat, ultraviolet light and gamma irradiation.
<i>Survival Outside Host</i>	Japanese encephalitis virus does not persist outside a living host.

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
<i>Minimum PPE Requirements</i>	Personnel are required to don gloves, closed toed shoes, lab coat, and appropriate face and eye protection prior to working with JEV. Additional PPE may be required depending on lab specific SOPs.
<i>Additional Precautions</i>	All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC). The use of needles, syringes, and other sharp objects should be strictly limited. Additional precautions should be considered with work involving animals or large scale activities.