

Biological Agent Reference Sheet (BARS)

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BIOLOGICAL AGENT REFERENCE SHEET

Lymphocytic choriomeningitis virus (LCMV)

CHARACTERISTICS	
<i>Morphology</i>	Member of the Arenaviridae family, enveloped virus, ssRNA.
<i>Strain Specific Characteristics</i>	In mice, the Armstrong strain increases viral titers for 3-4 days then declines to clear completely. The clone 13 strain (derived from Armstrong), increases viral titers for months after infection and causes immunosuppression. It is thought that the clone 13 strain is more virulent and it has caused LAIs. The WE strain has been found to be lethal in non-human primates (NHP).
<i>Growth Conditions</i>	Fibroblast or epithelial cell lines (37°C, 5% CO ₂).

HEALTH HAZARDS	
<i>Host Range</i>	House mice (<i>Mus musculus</i>) are natural hosts. LCMV can also infect humans other animals (hamsters, guinea pigs, NHPs, etc).
<i>Modes of Transmission</i>	LCMV is excreted through mice urine, saliva, and feces. Transmission occurs through inhalation, ingestion, and contact with mucous membranes and cuts or breaks in the skin. Vertical transmission is possible from mother to child. There is no other evidence of human to human transmission.
<i>Signs and Symptoms</i>	<u>First phase:</u> febrile illness (fever, lack of appetite, muscle aches, nausea, vomiting, headache, and/or malaise). <u>Second phase:</u> meningeal symptoms, encephalitic symptoms, and myelitis (swelling of the spinal cord).
<i>Infectious Dose</i>	Unknown.
<i>Incubation Period</i>	8-13 days.

MEDICAL PRECAUTIONS / TREATMENT	
<i>Prophylaxis</i>	None available.
<i>Vaccines</i>	None available.
<i>Treatment</i>	None available.
<i>Surveillance</i>	Monitor for symptoms and test using serology and viral isolation.
<i>Emory Requirements</i>	Report any exposures.
<i>Additional Medical Precautions</i>	Women who are pregnant or planning on becoming pregnant should be aware that pregnant women infected with LCMV can transmit the virus to their fetus. This can result in loss of pregnancy or serious birth defects.

LABORATORY HAZARDS	
<i>Laboratory Acquired Infections (LAIs)</i>	There have been well documented LAIs from infected animals and contaminated cell lines. 46 cases with 5 deaths have been documented.
<i>Sources</i>	Urine, saliva, blood, tissues, CSF, nasopharynx secretions, and feces from infected humans, animals, and contaminated cell lines.

SUPPLEMENTAL REFERENCES	
<i>Canadian MSDS</i>	http://www.phac-aspc.gc.ca/msds-ftss/msds97e-eng.php
<i>BMBL: 5th Edition</i>	http://www.cdc.gov/OD/ohs/biosfty/bmb15/BMBL_5th_Edition.pdf
<i>CDC LCMV Guidelines</i>	http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/lcmv.htm

SUPPLEMENTAL REFERENCES (continued)	
<i>Current Protocols in Microbiology</i>	Welsh, RM et Al. (2008). Lymphocytic Choriomeningitis Virus UNIT 15A.1(LCMV): Propagation, Quantitation, and Storage. <i>Current Protocols in Microbiology</i> : 15A.1.1. http://mrw.interscience.wiley.com/emrw/9780471729259/cp/cpmc/article/mc15a01/current/pdf

CONTAINMENT REQUIREMENTS	
<i>BSL-2</i>	Manipulation of known or potentially infected clinical samples and cell cultures of laboratory adapted strains.
<i>BSL-3</i>	Manipulations involving high aerosol potential, high concentrations or volumes of virus, and strains lethal to NHP.
<i>ABSL-2</i>	Work with adult mice infected with BSL-2 strains.
<i>ABSL-3</i>	Work with infected hamsters and work with adult mice infected with BSL-3 strains.

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.
<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>	<table border="0"> <tr> <td><u>7am-4pm (OIM):</u> EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)</td> <td><u>After Hours:</u> OIM NP On Call 404-686-5500 PIC# 50464</td> </tr> <tr> <td><u>Needle Stick (OIM):</u> EUH (404-686-8587) EUHM (404-686-2352)</td> <td><u>Yerkes:</u> Maureen Thompson Office (404-727-8012) Cell (404-275-0963)</td> </tr> </table>	<u>7am-4pm (OIM):</u> EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)	<u>After Hours:</u> OIM NP On Call 404-686-5500 PIC# 50464	<u>Needle Stick (OIM):</u> EUH (404-686-8587) EUHM (404-686-2352)	<u>Yerkes:</u> Maureen Thompson Office (404-727-8012) Cell (404-275-0963)
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VIABILITY	
<i>Disinfection</i>	Susceptible to 1% sodium hypochlorite, 2% glutaraldehyde, 70% ethanol, and formaldehyde.
<i>Inactivation</i>	Inactivated by heat.
<i>Survival Outside Host</i>	Capable of surviving outside of the host (mouse droppings).

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
<i>Minimum PPE Requirements</i>	At minimum, personnel are required to don gloves, closed toed shoes, lab coat, and appropriate face and eye protection prior to working with LCMV. Additional PPE may be required depending on lab specific SOPs.
<i>Additional Precautions</i>	Due to the modes of transmission, respirators may be required when working with LCMV. Fit testing and training is required annually per Emory's Respiratory Program: http://www.ehso.emory.edu/content-manuals/RespiratoryProtectionProgram.pdf