

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

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## BIOLOGICAL AGENT REFERENCE SHEET

### Vesicular Stomatitis Virus (VSV)

CHARACTERISTICS	
<i>Morphology</i>	Family Rhabdoviridae. Genus Vesiculovirus. Approx. 70nm in diameter, bullet-shaped, enveloped, single-stranded, negative-sense RNA virus. VSV has eight main serotypes: Indiana, New Jersey, Cocal, Alagoas, Isfahan, Chandipura, Maraba, and Piry.
<i>Growth Conditions</i>	Cell culture (recommended LLC-MK <sub>2</sub> cells; Incubated at 35 °C within 24 to 48 hours)

HEALTH HAZARDS	
<i>Host Range</i>	VSV causes disease in cattle, horses and swine. Human infection during epizootics is common.
<i>Modes of Transmission</i>	Bite of an infected sand fly; contact with infected domestic animals; direct contact with abrasions on skin; inhaling aerosols via the nasopharyngeal route; or via accidental autoinoculation or inhalation of aerosols in a laboratory setting
<i>Signs and Symptoms</i>	1) Infections with Indiana and New Jersey VSV serotypes: high fever (often biphasic); flu-like symptoms include severe malaise, headaches, myalgia, arthralgia, retrosternal pain, eye aches, and nausea. 2) Infections with Alagoas serotype: flu-like symptoms. 3) Infections with Chandipura serotype: fever, sensory disorders, convulsions, vomiting, diarrhea, and encephalitis. 4) Infections with Cocal, Piry, Maraba, Isfahan serotypes: unknown
<i>Infectious Dose</i>	Unknown
<i>Incubation Period</i>	Ranges 30 hours to 6 days

MEDICAL PRECAUTIONS / TREATMENT	
<i>Prophylaxis</i>	Good hygiene is recommended
<i>Vaccines</i>	None available
<i>Treatment</i>	No specific treatment is available. Symptomatic treatment and prevention of secondary infections is important
<i>Surveillance</i>	Monitor for symptoms. Laboratory confirmation is done via virus isolation from throat swabs or blood, PCR, ELISA, neutralization, complement fixation, immunofluorescence, and electron microscopy
<i>Emory Requirements</i>	Report all incidents. A USDA permit is required to import VSV. The Principal Investigator (PI) is responsible for inclusion of VSV in the biosafety approval. The PI should contact the biosafety officer when transferring or importing VSV.

LABORATORY HAZARDS	
<i>Laboratory Acquired Infections (LAIs)</i>	46 cases with New Jersey and Indiana viruses and 13 cases due to Piry virus until 1980 (with no deaths). No LAIs associated with Chandipura, Cocal, Maraba or Isfahan viruses have been reported
<i>Sources</i>	Exposure of skin and mucous membranes to VSV by direct contact with contaminated sources, percutaneous exposure.

SUPPLEMENTAL REFERENCES	
<i>Canadian PHAC</i>	<a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/stomatit-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/stomatit-eng.php</a>
<i>US Department of Agriculture</i>	<a href="https://www.aphis.usda.gov/publications/animal_health/content/printable_version/fs_vesicular_stomatitis_2012.pdf">https://www.aphis.usda.gov/publications/animal_health/content/printable_version/fs_vesicular_stomatitis_2012.pdf</a>

CONTAINMENT & PRACTICES	
<i>BSL2</i>	BSL2 is recommended for work involving Indiana, Cocal, Alagoas, New Jersey, Isfahan and Maraba VSV serotypes. Lab-specific procedures (SOPs) will outline specific containment, practices and PPE.
<i>BSL3</i>	BSL-3 practices, containment, equipment, and facilities are recommended for work involving VSV Chandipura and Piru serotypes infectious or potentially infectious materials, animals, or cultures.
<i>Animal work</i>	Risk assessment will be conducted to determine containment, practices and PPE will be determined

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 approved 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 the HOME portal: <a href="https://hrprod.emory.edu">https://hrprod.emory.edu</a> Self-Service>Workplace Health> Log into HOME with your Emory ID and password->Accident/Injury Entry				
<i>Medical Follow-up</i>	<table border="0" style="width: 100%;"> <tr> <td style="width: 60%;"><u>7am-4pm (OIM)</u> including Needlestick: 404-686-8587</td> <td style="width: 40%;"><u>After Hours:</u> OIM NP On Call 404-686-5500 PIC# 50464</td> </tr> <tr> <td colspan="2"><u>Yerkes:</u> Maureen Thompson Office (404-727-8012) Cell (404-275-0963)</td> </tr> </table>	<u>7am-4pm (OIM)</u> including Needlestick: 404-686-8587	<u>After Hours:</u> OIM NP On Call 404-686-5500 PIC# 50464	<u>Yerkes:</u> Maureen Thompson Office (404-727-8012) Cell (404-275-0963)	
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VIABILITY	
<i>Disinfection</i>	10% Sodium hypochlorite
<i>Inactivation</i>	Sensitive to heat (60 °C) and low pH (1.5).
<i>Survival Outside Host</i>	Can survive for 3 to 4 days in infected animal saliva

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 VSV. 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, or other sharp objects should be strictly limited.