The University of Vermont
Risk Management & Safety
Biosafety Office

BIOHAZARDOUS AGENT REFERENCE DOCUMENT

Vesicular Stomatitis Virus (VSV)

The Biohazardous Agent Reference Document (BARD) is a general guidance resource that reviews and summarizes the nature of a pathogen or biotoxin, and offers safety requirements for work with the agent in the laboratory. The BARD may replace the formal SOPs used in conjunction with some IBC registrations.

The BARD is provided as an additional guidance tool, and is not a substitute for a risk assessment, biosafety training, lab-specific training, or a formal IBC master protocol registration. This document should be readily available in the laboratory, and it is the responsibility of the Laboratory Supervisor or Principal Investigator to ensure that all personnel have read, understood, and signed the document. The BARD is for informational purposes only, and is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Please consult a health care provider for any medical questions or concerns.

INSTRUCTIONS

1. **Review the information contained in this document.**
2. **Add any necessary information that is specific to your work in the laboratory (such as strain-specific information). Please be sure that the track changes function is turned on to indicate any changes that you make.**
3. **Instruct all personnel to review the BARD and sign the last page, indicating that they have read and understood the information.**
4. **Submit the BARD along with your IBC master protocol registration, amendment, or continuing review.**

Principal Investigator: _____ IBC Registration #: _____

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CHARACTERISTICS	
Morphology	Member of the Rhabdoviridae family, enveloped virus. Livestock pathogen.
Strain Specific Characteristics	8 main serotypes: Indiana, New Jersey, Cocal, Alagoas, Isfahan, Chandipura, Maraba, Piry

HEALTH HAZARDS	
Host Range	Humans (except for Maraba and Cocal serotypes), horses, cattle, pigs, mules, sand flies, grasshoppers, rodents
Modes of Transmission	Contact with non-intact skin, inhalation, bite from an infected sand fly
Signs and Symptoms	Infections with Indiana, New Jersey, Alagoas serotypes: Flu-like symptoms including severe malaise, headaches, muscle and joint pain, retrosternal pain, eye aches, nausea, vesicle formation on oral mucosa (rare) Infections with Chandipura: fever, sensory disorders, convulsions, vomiting, diarrhea, and encephalitis leading to coma and death
Infectious Dose	Unknown
Incubation Period	30 hours – 6 days

MEDICAL PRECAUTIONS / TREATMENT	
Prophylaxis	None available
Vaccines	None available
Treatment	Symptomatic treatment to prevent secondary infections
Surveillance	Monitor for symptoms and test using viral isolation, PCR, or ELISA
UVM IBC Requirements	Report any exposures or signs and symptoms to your supervisor
Additional Medical Precautions	

LABORATORY HAZARDS	
Laboratory Acquired Infections	As of 1980, 46 recorded cases with New Jersey and Indiana serotypes, 13 cases with Piry serotype
Sources	Infected human or animal blood, throat secretions, saliva, exudates, open wounds, and laboratory cultures.

CONTAINMENT REQUIREMENTS	
BSL - 2	Manipulation of known or potentially infected clinical samples and cell cultures of laboratory adapted strains (RG2: Indiana, Cocal, Alagoas, New Jersey, Isfahan, Maraba)
BSL - 3	Manipulation of known or potentially infected clinical samples and cell cultures of laboratory adapted strains (RG3: Chandipura, Piry)
ABSL - 2	Work with animals infected with risk group 2 strains
ABSL - 3	Work with animals infected with risk group 3 strains
Aerosol generating activities	Centrifugation, homogenizing, vortexing or stirring, changing of animal cages, animal surgeries, cell sorting, pipetting, pouring liquids, sonicating, loading syringes
Primary containment device (BSC)	Use for aerosol-generating activities, high concentrations, or large volumes. Use for all activities at BSL-3.

EXPOSURE PROCEDURES	
Mucous membranes	Flush eyes, mouth or nose for 15 minutes at eyewash station.
Other exposures	Wash area with soap and water for 15 minutes
Medical Follow-Up	Contact UVMMC Infectious Disease Dept. directly at **(802) 847-2700** for immediate assistance
Reporting	Report all exposures or near misses to: 1. Your immediate Supervisor 2. The UVM Biosafety Officer at **(802) 777-9471** and Risk Management at **6-3242** 3. Risk Management and Safety; https://www.uvm.edu/riskmanagement/incident-claim-reporting-procedures

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
Minimum PPE Requirements	BSL-2: Nitrile gloves, lab coat, appropriate eye/face protection. BSL-3: full coverage protective clothing, solid-front gown with tight-fitting wrists, gloves, respiratory protection, shoe covers, appropriate eye/face protection. Wash hands after removing all PPE.
Additional Precautions (Risk assessment dependent)	Sharps use strictly limited.

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VIABILITY	
Disinfection	Susceptible to 10% bleach, 2.5% phenol, 0.4% HCl, 1% cresylic acid, chlorinated phenol, 2% sodium orthophenylphenate; with 20-minute contact time
Inactivation	Inactivated by pH at or below 1.5, heat above 60°C
Survival Outside Host	Capable of surviving outside of host 3 – 4 days in infected saliva

SPILL CLEAN UP PROCEDURES	
Small Spill	Notify others working in the lab. Allow aerosols to settle. Don appropriate PPE. Cover area of the spill with paper towels and apply approved disinfectant, working from the perimeter towards the center. Allow 30 minutes of contact time before clean up and disposal. Dispose in double biowaste bags and biobox.
Large Spill	**Inside of a lab:** Call UVM Service Operations at 656-2560 and press option 1 to speak to a dispatcher. Ask them to page Risk Management and Safety. **Outside of a lab:** Pull the nearest fire alarm and evacuate the building. Wait out front of the building for emergency responders to arrive.

REFERENCES	
Canadian PSDS	https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/vesicular-stomatitis-virus.html
BMBL	https://www.cdc.gov/biosafety/publications/bmbl5/
Journal of Virological Methods	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2956192/
Frontiers in Microbiology	http://journal.frontiersin.org/article/10.3389/fmicb.2011.00272/full

STUDENT / EMPLOYEE NAME	SIGNATURE	DATE

Biosafety Review:

_____
Jeff LaBossiere, Biological Safety Officer

_____
Date

Principal Investigator: _____ IBC Registration #: _____