**Biohazardous Agent Reference Document (BARD) and**

**Information for Healthcare Providers in the Event of an Exposure**

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| The BARD is an additional guidance tool. It is not a substitute for a risk assessment, biosafety training, lab-specific training, SOP as required by the IBC or a formal [IBC master protocol registration](https://www.uvm.edu/rpo/biosafety-oversight). This document must 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 and understood the information. The BARD is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Please bring this IBC-approved BARD with you to the UVMMC Emergency Department if there has been an exposure and someone requires medical assistance.  INSTRUCTIONS for BARD Preparation   1. Complete the blue Information for Healthcare Providers section. 2. Review the standard information contained in the green section of this document. 3. Add/revise 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. 4. Submit the BARD along with your IBC master protocol registration or amendment. 5. Once approved by the IBC, all personnel must review this BARD. The PI will attest during the submission of the registration or amendment to add new personnel that each lab member has read and understands the material. | |
| **Information for Healthcare Providers**  Dear Healthcare Provider,  This individual works in a UVM research laboratory and has been exposed to a pathogen or toxin. Information about the materials this person may have been exposed to is listed below. You may also find useful additional information in subsequent pages of this reference document. | |
| **Pathogen Name:** | Lymphocytic choriomeningitis virus (LCMV) |
| **Pathogen/Toxin Classification:** |  |
| **List All Strains Used in the Laboratory:** |  |
| **List Resistant Genes Known to be Encoded:** |  |
| **Modes of Transmission *(mucous membranes, needle stick, inhalation)*:** | LCMV is excreted through mouse urine, saliva, and feces, Transmission occurs through inhalation, ingestion, contact with mucous membranes, and breaks in the skin. Vertical transmission is possible from mother to child. There is no other evidence of human to human transmission. |
| **Known Medical Precautions and Treatment** | |

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| **Prophylaxis** | Not available |
| **Vaccines** | Not available |
| **Treatment and/or Post-exposure Intervention** | Not available |
| **Surveillance** | Monitor for symptoms and test using serology and viral isolation |
| **Additional Medical Precautions (immunosuppression, pregnancy, allergies)** | 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. |

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| **Health Hazards** | |
| **Host Range** | House mice are natural hosts. LCMV can also infect humans and other animals (hamsters, guinea pigs, NHPs) |
| **Signs and Symptoms** | First Phase: febrile illness (fever, lack of appetite, muscle aches, nausea, vomiting, headache, and malaise).  Second Phase: meningeal symptoms, encephalitic symptoms, and myelitis (swelling of the spinal cord). |
| **Infectious Dose** | Unknown |
| **Incubation Period** | 8 – 13 days |
| **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. SOS at 802-656-2560 and ask to have the EH&S team paged 3. Risk Management: <https://www.uvm.edu/riskmanagement/incident-claim-reporting-procedures> |
| **Laboratory Hazards** | |
| **Laboratory Acquired Infections** | There have been well documented LAI’s from infected animals and contaminated cell lines. 46 cases with 5 deaths have been documented. |
| **Sources** | Urine, saliva, blood, tissues, cerebrospinal fluid, nasopharynx secretions, and feces from infected humans, animals and contaminated cell lines. |
| **Characteristics** | |
| **Morphology** | Member of the Arenaviridae family, enveloped virus. |
| **Strain Specific Characteristics** | Armstrong strain: in mice, increases viral titers for 3-4 days then declines to clear completely. Clone 13 strain: increases viral titers for months after infection and causes immunosuppression. It is thought that the clone 13 strain is more virulent and has caused lab-acquired infections.  We strain: has been found to be lethal in non-human primates (NHPs). |
| **Containment Requirements** | |
| **BSL - 2** | Manipulation of known or potentially infected clinical samples and cell cultures of laboratory adapted strains (RG2) |
| **BSL - 3** | Manipulations involving high aerosol potential, high concentrations or volumes of virus, and strains lethal to NHP’s (RG3). |
| **ABSL - 2** | Work with animals infected with risk group 2 strains |
| **ABSL - 3** | Work with animals infected with RG3 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 |
| **Personal Protective Equipment (PPE)** | |
| ***Minimum PPE Requirements*** | Nitrile gloves, lab coat, appropriate eye/face protection. Wash hands after removing gloves. |
| ***Additional Precautions***  ***(Risk assessment dependent)*** | Sharps use strictly limited. Due to modes of transmission, respirators may be required when working with LCMV. Medical clearance, fit testing and training is required annually per UVM’s Respiratory Protection Program; <https://www.uvm.edu/riskmanagement/personal-protective-equipment> |
| **Viability** | |
| **Disinfection** | Susceptible to 1% sodium hypochlorite, 2% glutaraldehyde, 70% ethanol, and formaldehyde; with 15-minute contact time |
| **Inactivation** | Inactivated by heat above 55°C for 20+ minutes |
| **Survival Outside Host** | Capable of surviving outside of host in mouse droppings |
| **Spill Clean Up Procedures** | |
| **Small Spills** | 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 Spills** | **Inside of a lab:** Call UVM Service Operations at 656-2560 and ask 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** | <http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/lymp-cho-eng.php> |
| **BMBL** | <https://www.cdc.gov/biosafety/publications/bmbl5/> |
| **CDC LCMV Guidelines** | <https://www.cdc.gov/vhf/lcm/index.html> |
| **Current Protocols in Microbiology** | Welsh, RM et Al. (2008). Lymphocytic Choriomeningitis Virus (LCMV): Propagation, Quantitation, and Storage.  <https://www.ncbi.nlm.nih.gov/pubmed/18770534> |