The University of Vermont
Risk Management & Safety
Biosafety Office

BIOHAZARDOUS AGENT REFERENCE DOCUMENT

Adenovirus (types 1, 2, 3, 4, 5, 7)

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 Adenoviridae family, non-enveloped virus.
Strain Specific Characteristics	Respiratory illness mainly caused by serotypes 4 and 7

HEALTH HAZARDS	
Host Range	Humans, experimentally infected primates, rabbits, rodents.
Modes of Transmission	Inhalation, ingestion, mucous membrane contact. Can also be spread by contaminated fomites.
Signs and Symptoms	Generally mild and self-limiting respiratory tract infections, with the majority of cases being asymptomatic. Possible fever, nasal congestion, pharyngitis, irritation and/or inflammation of the nose, conjunctivitis with ocular exposures, may lead to more serious illnesses.
Infectious Dose	As few as 5 viral particles via inhalation in susceptible individuals. NIH lists infectious dose for serotype 7 as >150 viral units (administered as nasal drops)
Incubation Period	2 - 14 days

MEDICAL PRECAUTIONS / TREATMENT	
Prophylaxis	None available
Vaccines	None available
Treatment	Supportive treatment for symptoms
Surveillance	Monitor for symptoms and test using PCR, microscopy, or immunoassays
UVM IBC Requirements	Report any exposures or signs and symptoms to your supervisor
Additional Medical Precautions	Chance of transmission is high in crowded and closed settings. Virus shedding may last for several weeks.

LABORATORY HAZARDS	
Laboratory Acquired Infections	10 documented cases up to 2006, serotypes not reported
Sources	Respiratory secretions, tissues, and feces from infected humans & animals, and laboratory cultures or specimens.

CONTAINMENT REQUIREMENTS	
BSL - 2	Manipulation of known or potentially infected clinical samples and cell cultures of laboratory adapted strains (RG2)
BSL - 3	
ABSL - 2	Work with animals infected with risk group 2 strains. Animals infected with replication incompetent strains may be moved to ABSL-1 after 72 hours. If the strain is replication competent, animals must remain at ABSL-2
ABSL - 3	
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

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	Nitrile gloves, lab coat, appropriate eye/face protection. Wash hands after removing gloves.
Additional Precautions (Risk assessment dependent)	Sharps use strictly limited.

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VIABILITY	
Disinfection	Susceptible to formaldehyde, chlorine, or 1:5 dilution of bleach; with 10 minutes contact time.
Inactivation	Inactivated by heat above 56°C for 30 minutes, 60°C for 2 minutes, or by autoclaving.
Survival Outside Host	Capable of surviving at 36°C for a week, several weeks at room temperature, several months at 4°C, up to 3 months on dry inanimate objects, several weeks in water, sewage, and sea water.

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/adenovirus-types-1-2-3-4-5-7-pathogen-safety-data-sheet.html
BMBL	https://www.cdc.gov/biosafety/publications/bmbl5/
CDC Guidelines	https://www.cdc.gov/adenovirus/index.html
Current Protocols in Microbiology	http://onlinelibrary.wiley.com/doi/10.1002/9780471729259.mc14c01s00/abstract
Current Gene Therapy	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4507798/

STUDENT / EMPLOYEE NAME	SIGNATURE	DATE

Biosafety Review:

_____ _____

Jeff LaBossiere, Biological Safety Officer — Date

Principal Investigator: _____ IBC Registration #: _____