The University of Vermont
Risk Management & Safety
Biosafety Office

BIOHAZARDOUS AGENT REFERENCE DOCUMENT

Pseudomonas aeruginosa

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	Gram-negative, motile, rod-shaped bacterium with polar flagella. Non-spore forming and can produce pigments, such as pyocyanin (blue-green). Opportunistic pathogen, most virulent species of this genus. Can produce a variety of extracellular toxins.
Strain Specific Characteristics	

HEALTH HAZARDS	
Host Range	Humans, wild & domestic animals, livestock, plants, fungi
Modes of Transmission	Inhalation of aerosols, contact with non-intact skin, mucous membrane exposure, ingestion
Signs and Symptoms	Localized infection of lower respiratory tract, urinary tract, mucous membrane, ear, skin; depending on mode of transmission
Infectious Dose	Unknown
Incubation Period	Varies, 24 – 72 hours for eye infection

MEDICAL PRECAUTIONS / TREATMENT	
Prophylaxis	Not recommended in otherwise healthy individuals as it can lead to drug resistance. Antibiotics such as ciprofloxacin for patients with cystic fibrosis
Vaccines	None available
Treatment	Administer appropriate antibiotic(s), wounds should be cleaned with surgical detergent disinfectants and/or topical antibacterial ointments
Surveillance	Monitor for symptoms and test using bacteriological culture and identification
UVM IBC Requirements	Report any exposures or signs and symptoms to your supervisor
Additional Medical Precautions	Resistant to many antibiotics, common cause of nosocomial infections. Immunocompromised individuals are at highest risk.

LABORATORY HAZARDS	
Laboratory Acquired Infections	None reported to date.
Sources	Blood, urine, skin, sputum, soft tissues, lower respiratory tract secretions, wound exudates from infected humans & animals, contaminated water sources, and laboratory cultures.

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
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 1% sodium hypochlorite, 2% glutaraldehyde, 70% ethanol, and formaldehyde; with 10-minute contact time
Inactivation	Inactivated by steam autoclaving for at least 15 minutes, dry heat at 170-250°C or higher for at least 30 minutes
Survival Outside Host	Capable of surviving for months on dry surfaces and inanimate objects, humidity can improve persistence, growth observed in distilled water, & can survive for months with minimal nutrients

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/pseudomonas.html
BMBL	https://www.cdc.gov/biosafety/publications/bmbl5/
CDC Guidelines	https://www.cdc.gov/hai/organisms/pseudomonas.html
Current Protocols in Microbiology	http://onlinelibrary.wiley.com/doi/10.1002/9780471729259.mc06e01s25/abstract

STUDENT / EMPLOYEE NAME	SIGNATURE	DATE

Biosafety Review:

_____ _____

Jeff LaBossiere, Biological Safety Officer — Date

Principal Investigator: _____ IBC Registration #: _____