

BIOHAZARDOUS AGENT REFERENCE DOCUMENT**Entamoeba histolytica**

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.**

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Entamoeba histolytica

CHARACTERISTICS	
Morphology	Pseudopod-forming nonflagellate protozoan parasite. Life cycle consists of two stages: ameboid trophozoite (10-60 um) and infectious cyst (10-15 um).
Strain Specific Characteristics	

HEALTH HAZARDS	
Host Range	Humans and non-human primates
Modes of Transmission	Ingestion, sexual transmission
Signs and Symptoms	Most infections asymptomatic. Amebic dysentery: diarrhea with severe cramping, lower abdominal pain, low-grade fever, presence of blood or mucous in stool. Ulcers may be produced if intestinal tissue invasion occurs. Fever or leukocytosis also possible.
Infectious Dose	Average >1000 organisms. Ingestion of one cyst reported to cause disease.
Incubation Period	Range from days to months

MEDICAL PRECAUTIONS / TREATMENT	
Prophylaxis	None available
Vaccines	None available
Treatment	Asymptomatic patients can be treated with luminal amebicides only (kills cysts). Symptomatic patients can be treated with tissue amebicides (kills trophozoites), followed by treatment with luminal amebicides.
Surveillance	Monitor for symptoms and test using serology, PCR, microscopic detection. Sonography or CT scan to confirm tissue invasion.
UVM IBC Requirements	Report any exposures or signs and symptoms to your supervisor
Additional Medical Precautions	Pregnant women, immunocompromised, or immunosuppressed individuals may be at an increased risk for complications

LABORATORY HAZARDS	
Laboratory Acquired Infections	LAIs have been reported
Sources	Feces, ulcer secretions, abscess aspirates, tissue biopsies from infected humans & animals, 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, animal manipulations, 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 UVMHC Infectious Disease Dept. directly at (802) 847-2700 for immediate assistance. Bring this document with you if seeking medical care.
Reporting	Report all exposures or near misses to: <ol style="list-style-type: none"> 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
Additional Precautions (Risk assessment dependent)	Sharps use strictly limited.

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VIABILITY	
Disinfection	Cysts highly resistant to disinfection. Susceptible to ozone, chlorine dioxide, 8 ppm iodine, free chlorine; with a contact time of 20 minutes. Trophozoites susceptible to 10% bleach, with a contact time of 10 minutes.
Inactivation	Inactivated by heat above 56°C, solar irradiation, freezing
Survival Outside Host	Cysts capable of surviving in water and soil for weeks, and in food. Trophozoites are not infectious and do not survive well outside of host.

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	<p>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.</p> <p>Outside of a lab: Pull the nearest fire alarm and evacuate the building. Wait out front of the building for emergency responders to arrive.</p>

REFERENCES	
Canadian PSDS	https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/entamoeba-histolytica-pathogen-safety-data-sheet.html
BMBL	https://www.cdc.gov/biosafety/publications/bmb15/
CDC Guidelines	https://www.cdc.gov/parasites/amebiasis/index.html
Global Water Pathogen Project	http://www.waterpathogens.org/book/entamoeba-histolytica

STUDENT / EMPLOYEE NAME	SIGNATURE	DATE

Biosafety Review:

Jeff LaBossier, Biological Safety Officer

Date

Principal Investigator: _____

IBC Registration #: _____