

PATHOGEN SAFETY DATA SHEET

Naegleria fowleri

CHARACTERISTICS	
Morphology	Single celled amoeba found in warm freshwater and in soil, feeds on Gram-negative bacteria.
Disease	Primary Amoebic Meningoencephalitis.
Zoonosis	None.

HEALTH HAZARDS	
Host Range	Humans, animals.
Modes of Transmission	Contact with mucous membranes, accidental ingestion, skin puncture
Signs and Symptoms	Sore throat, blocked nasal passages, fever, vomiting, stiff neck, confusion, abnormal behavior.
Infectious Dose	Unknown
Incubation Period	1-7 days.

MEDICAL PRECAUTIONS/TREATMENT	
Prophylaxis	None available.
Vaccines	None available.
Treatment	Susceptible to amphotericin B, which is often used in combination with rifampin, orindazol, miconazol, sulisoxazole, or chloramphenicol. Miltefosine and voriconazole has also been found to be effective against infection.
Surveillance	Monitor for symptoms
MSU Requirements	Report any exposures

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	None reported.
Sources	Water, soil, cerebral spinal fluid, brain and lung tissue, skin, and corneal biopsy material. Cultures, frozen stocks, other samples described in IBC protocol.

SUPPLEMENTAL REFERENCES	
Canadian MSDS:	http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/index-eng.php
BMBL	https://www.cdc.gov/labs/BMBL.html
CDC	https://www.cdc.gov/parasites/naegleria/index.html
NIH Guidelines	https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf

RISK GROUP & CONTAINMENT REQUIREMENTS	
Risk Group 2	Agents that are associated with human disease which is rarely serious and for which preventive or therapeutic interventions are often available.
BSL2	For all procedures involving suspected or known infectious specimen or cultures.
ABSL2	For all procedures utilizing infected animals.

SPILL PROCEDURES	
Small	Notify others working in the lab. Remove PPE and don new PPE. Cover area of the spill with absorbent material and add fresh 1:10 bleach:water. Allow 20 minutes (or as directed) of contact time. After 20 minutes, cleanup and dispose of materials.
Large	<ul style="list-style-type: none"> Immediately notify all personnel in the lab and clear all personnel from the area. Remove any contaminated PPE/clothing and leave the lab. Secure the area by locking doors, posting signage and guarding the area to keep people out of the space. For assistance, contact MSU's Biosafety Officer (406-994-6733) or Safety and Risk Management (406-994-2711).

EXPOSURE PROCEDURES	
Mucous membrane	Flush eyes, mouth, or nose for 5 minutes at eyewash station.
Other Exposures	Wash area with soap and water for 5 minutes.
Reporting	Immediately report incident to supervisor, complete a First Report of Injury form, and submit to Safety and Risk Management.
Medical Follow-up	During business hours: Bridger Occupational Health 3406 Laramie Drive Weekdays 8am -6pm. Weekends 9am-5pm After business hours: Bozeman Deaconess Hospital Emergency Room 915 Highland Blvd

VIABILITY	
Disinfection	Susceptible to 1:10 bleach:water
Inactivation	Heating water to 50°C for 5 minutes will kill all forms of the amoebae. Both amoeba and cysts can tolerate temperature of 65°C for 1-3 minutes and temperatures below 20°C inhibit reproduction. Degradation occurs when temperatures reach below 10°C. Dehydration is lethal to <i>N. fowleri</i> .
Survival Outside Host	can survive in water at temperature up to 45°C and at pH 4.6 - 9.5

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
Minimum PPE Requirements	Lab coat, disposable gloves, safety glasses, closed toed shoes, long pants
Additional Precautions	Additional PPE may be required depending on lab specific SOPs and IBC Protocol.