MONTANA STATE UNIVERSITY | Office of Research Compliance

PATHOGEN SAFETY DATA SHEET

Listeria monocytogenes

CHARACTERISTICS	
Morphology	Facultatively anaerobic, gram-positive, rod-shaped coccobacillus, typically measuring 0.5 to 2µm long and 0.5µm in diameter.
Disease	Listeriosis, meningitis, febrile gastroenteritis, can lead to fetal complications during pregnancy; and circling disease in animals.
Zoonosis	Yes, through consumption of contaminated animal and vegetable products, and direct contact of infected animal tissues.

HEALTH HAZARDS	
Host Range	Mammals, fish, birds, crustaceans, and insects. Pregnant women, the elderly, immunocompromised, fetuses, and neonates are the most at risk for listeriosis.
Modes of Transmission	Ingestion of contaminated food, direct contact with contaminated soil, and transmission from the mother to fetus during birth. Infected mothers may shed for 7-10 days after delivery.
Signs and Symptoms	Symptoms of listeriosis include fever, muscle ache, nausea, and diarrhea may occur. Infection may spread to the nervous system causing meningitis. Endocarditis, septicemia, and disseminated granulomatous may occur in infected adults. Pregnant women may experience only a mild, flu-like illness. However, infections during pregnancy can lead to abortion, stillbirth, premature delivery, or infection of the newborn.
Infectious Dose	unknown
Incubation Period	From 3-70 days. Median incubation period is 21 days.

MEDICAL PRECAUTIONS/TREATMENT	
Prophylaxis	None available
Vaccines	None available
Treatment	Antibiotic therapy (penicillin or ampicillin alone or with aminoglycosides). Resistant to cephalosporins.
Surveillance	Monitor for symptoms. Test feces, CFS, or blood.
MSU Requirements	Report any exposures

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	There have only been 2 reported LAIs. Pregnant women should take special caution to avoid contact with infected material.
Sources	Cerebrospinal fluid, blood, placental/fetal tissue, genital track secretions, amniotic fluid, and infected animals. 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/listeria/
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	• 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, 70 % ethanol and glutaraldehyde.
Inactivation	Inactivated by moist heat (15 minutes at 121° C), dry heat (1 hour at 160-170° C), short wave UV, and gamma irradiation.
Survival Outside Host	Able to survive outside of hosts (water, soil, food, feces). Capable of growing at low temperatures (-4 to 0-0.1° C)

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.