Biological Agent Reference Sheet (BARS)

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BIOLOGICAL AGENT REFERENCE SHEET

Mycobacterium marinum

CHARACTERISTICS	
Morphology	Gram positive, non-motile, acid-fast, rod-shaped aerobic bacteria with high genomic DNA GC content. Non-pigmented if grown in darkness but bright yellow if grown in light. Smooth to rough colonies on inspissated egg medium and smooth colonies if grown on oleic acid-albumin agar.
Growth Conditions	Growth on inspissated egg medium or oleic acid-albumin agar at 30°C within 7 or more days

HEALTH HAZARDS	
Host Range	Humans, fish, and other aquatic animals.
Modes of Transmission	Passed from fish to humans through breaks in the skin. This typically occurs when cleaning aquariums or fish tanks, handling or cleaning fish, and swimming or working in fresh or salt-water. *M. marinum* is not transmissible from human to human.
Signs and Symptoms	Skin lesions or cutaneous granulomas typically near the elbow, knee, foot, finger or toe. More severe forms include tenosynovitis, arthritis, bursitis and osteomyelitis. Disseminated infections are possible but are rare.
Infectious Dose	Unknown
Incubation Period	Symptoms usually appear within 2 to 4 weeks post inoculation. Some cases have shown symptoms after 2 to 4 months due to the slow-growing nature of the organism.

MEDICAL PRECAUTIONS / TREATMENT	
Prophylaxis	None available.
Vaccines	None available.
Treatment	Resistant to isoniazid but susceptible to ethambutol and rifampin.
Surveillance	Tissue biopsy for culture and histology.
Emory Requirements	Report all exposures.

LABORATORY HAZARDS	
Sources	Environmental samples, exudates from lesions, and tissues, water used for aquatic animal habitat or growth.

SUPPLEMENTAL REFERENCES	
Canadian MSDS	http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/mycobacterium-eng.php
National Center for Biotechnology Information	http://rdna4.ridom.de/ridom2/servlet/pglink?page=species&strain=158
Iowa State University – Center for Food Security & Public Health	http://www.cfsph.iastate.edu/Factsheets/pdfs/mycobacterium_marinum.pdf

CONTAINMENT REQUIREMENTS	
BSL-2	When handling clinical materials and cultures.
ABSL-2	When conducting animal studies.

SPILL PROCEDURES	
Small	Notify others working in the lab. Allow aerosols to settle. Don appropriate PPE. Cover area of the spill with paper towels and apply an appropriate disinfectant, working from the perimeter towards the center. Allow 30 minutes of contact time before disposal and cleanup of spill materials.
Large	Contact Emory's Biosafety Officer (404-727-8863), the EHSO Office (404-727-5922), or The Spill Response Team (404-727-2888).

EXPOSURE PROCEDURES		
Mucous membrane	Flush eyes, mouth or nose for 15 minutes at eyewash station.	
Other Exposures	Wash area with soap and water for 15 minutes.	
Reporting	Immediately report incident to supervisor, complete an employee incident report in PeopleSoft.	
Medical Follow-up	7am-4pm (OIM): EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)	After Hours: OIM NP On Call 404-686-5500 PIC# 50464
	Needle Stick (OIM): EUH (404-686-8587) EUHM (404-686-2352)	Yerkes: Maureen Thompson Office (404-727-8012) Cell (404-275-0963)

VIABILITY	
Disinfection	Greater resistance to disinfectants and require longer contact times for most disinfectants to be effective; 5% phenol, 1% sodium hypochlorite (low organic matter and longer contact times), iodine solutions (high concentration of available iodine), glutaraldehyde and formaldehyde (longer contact time) are effective.
Inactivation	Sensitive to moist heat (121°C for at least 15 minutes).
Survival Outside Host	Carcass and organs (up to 1 year), cereals (3 years), soil (2 years), water (2 years), manure (up to 154 days), saw dust (230 days).

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
Minimum PPE Requirements	At minimum, personnel are required to don gloves, closed toed shoes, lab coat, and appropriate face and eye protection prior to working with *M. marium.* Additional PPE may be required depending on lab specific SOPs.
Additional Precautions	None