

Biological Agent Reference Sheet (BARS)

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BIOLOGICAL AGENT REFERENCE SHEET

Yellow fever virus (YFV)

CHARACTERISTICS	
<i>Morphology</i>	Member of the Flaviviridae family, spherical virions 40-50 nm in diameter, enveloped nucleocapsid, +ssRNA virus.
<i>Growth Conditions</i>	Cell culture.

HEALTH HAZARDS	
<i>Host Range</i>	Humans, monkeys and other primates.
<i>Modes of Transmission</i>	Transmitted by the bite of mosquitoes carrying YFV.
<i>Signs and Symptoms</i>	First phase of symptoms include fever, aches, extreme exhaustion, nausea, vomiting, weak pulse. After 3-4 days symptoms subside. Symptoms reappear as jaundice, blood in vomit and hemorrhagic symptoms.
<i>Infectious Dose</i>	Unknown
<i>Incubation Period</i>	3-6 days

MEDICAL PRECAUTIONS / TREATMENT	
<i>Prophylaxis</i>	None available.
<i>Vaccines</i>	<ul style="list-style-type: none"> Licensed live attenuated vaccine (17D strain) is available. Recommended for lab personnel who might be exposed to virulent YFV or concentrated amounts of the 17D strain by direct and indirect contact. Not recommended for those who are immunosuppressed, taking corticosteroids, are pregnant, or have an egg allergy.
<i>Treatment</i>	None available.
<i>Surveillance</i>	Monitor for febrile illness and test for infection by viral isolation or PCR.
<i>Emory Requirements</i>	Must be vaccinated before working with YFV. Revaccination is required every 10 years.

LABORATORY HAZARDS	
<i>Laboratory Acquired Infections (LAIs)</i>	There have been 40 reported LAIs, 9 resulting in death. Some LAIs have occurred by the aerosol route (unvaccinated lab workers).
<i>Sources</i>	Blood, CSF, urine, exudates, aerosols of infectious solutions and bedding, self inoculation, and broken skin.

SUPPLEMENTAL REFERENCES	
<i>Canadian MSDS</i>	http://www.phac-aspc.gc.ca/msds-ftss/msds167e-eng.php
<i>CDC</i>	https://www.cdc.gov/yellowfever/index.html
<i>WHO</i>	http://www.who.int/topics/yellow_fever/en/

CONTAINMENT REQUIREMENTS	
<i>BSL-3</i>	For all procedures involving potentially infected clinical samples, infected tissue, or culture. HEPA filtration of all exhaust air from the laboratory.
<i>ABSL-3</i>	For all procedures involving infected animals or arthropods. HEPA filtration of all exhausts air from the laboratory.

SPILL PROCEDURES	
<i>Small</i>	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.
<i>Large</i>	Contact Emory's Biosafety Officer (404-727-8863), the EHSO Office (404-727-5922), or The Spill Response Team (404-727-2888).

EXPOSURE PROCEDURES					
<i>Mucous membrane</i>	Flush eyes, mouth or nose for 15 minutes at eyewash station.				
<i>Other Exposures</i>	Wash area with soap and water for 15 minutes.				
<i>Reporting</i>	Immediately report incident to supervisor, complete an employee incident report in PeopleSoft.				
<i>Medical Follow-up</i>	<table border="0"> <tr> <td>7am-4pm (OIM): EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)</td> <td>After Hours: OIM NP On Call 404-686-5500 PIC# 50464</td> </tr> <tr> <td>Needle Stick (OIM): EUH (404-686-8587) EUHM (404-686-2352)</td> <td>Yerkes: Maureen Thompson Office (404-727-8012) Cell (404-275-0963)</td> </tr> </table>	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)
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VIABILITY	
<i>Disinfection</i>	Susceptible to 1% sodium hypochlorite, 2% glutaraldehyde, 70% ethanol, 3-8% formaldehyde, 2-3% hydrogen peroxide, 1% iodine, organic solvents and organic detergents.
<i>Inactivation</i>	Inactivated by heat (60°C for 10 minutes), UV and gamma irradiation.
<i>Survival Outside Host</i>	No survival outside the host.

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
<i>Minimum PPE Requirements</i>	At minimum, personnel are required to don gloves, closed toed shoes, lab coat, and appropriate face and eye protection prior to working with YFV. Additional PPE may be required depending on lab specific SOPs.
<i>Additional Precautions</i>	Respirators must be worn when cleaning up spills involving YFV. Fit testing and training is required annually per Emory's Respiratory Program: http://www.ehso.emory.edu/content-manuals/RespiratoryProtectionProgram.pdf