Biological Agent Reference Sheet (BARS)

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BIOLOGICAL AGENT REFERENCE SHEET

Zika Virus (ZIKV)

CHARACTERISTICS	
Morphology	Zika virus (ZIKV) is a single-stranded RNA virus of the Flaviviridae family, genus Flavivirus, Spondweni group. There are two ZIKV lineages: the African lineage and the Asian lineage which has recently emerged in the Pacific and the Americas.
Growth Conditions	Inoculate intracerebrally into suckling mice. Resuspend 20% sMb (sucking mouse brain) with 7.5% BSA in PBS.
Sources	-ATCC® VR84 – from MR766 (original strain) -Wild virus isolated from infected human diagnostic samples

HEALTH HAZARDS	
Host Range	Humans and NHPs, non-pathogenic for hamster, guinea pig or rabbit.
Modes of Transmission	ZIKV is transmitted by infected *Aedes* mosquitoes. Perinatal, in utero, sexual and transfusion transmission events have also been reported.
Signs and Symptoms	About 1 in 5 people infected with ZIKV become ill. The most common symptoms of Zika are fever, rash, joint pain, or conjunctivitis (red eyes). Other common symptoms include muscle pain and headache. The illness is usually mild with symptoms lasting for several days to a week. There may be an association between ZIKV infection in pregnancy and microcephaly of the fetus.
Infectious Dose	Unknown
Incubation Period	The incubation period ranges between approximately three to 12 days after the bite of an infected mosquito. Most of the infections remain asymptomatic (between 60 to 80%).

MEDICAL PRECAUTIONS / TREATMENT	
Prophylaxis	None
Vaccines	None
Diagnosis	ZIKV disease diagnostics is primarily based on detection of viral RNA from clinical specimens in acutely ill patients. The viremic period appears to be short, allowing for direct virus detection during the first 3–5 days after the onset of symptoms.
Treatment	The treatment is symptomatic and mainly based on pain relief, fever reduction and anti-histamines for pruritic rash.
Surveillance	People infected with ZIKV, chikungunya, or dengue virus should be protected from further mosquito exposure during the first few days of illness to prevent other mosquitoes from becoming infected and reduce the risk of local transmission
Emory Requirements	Occupational Health Consultation prior to handling ZIKV. Report all incidents.

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	Accidental infection has occurred in laboratory personnel
Sources	Unknown

SUPPLEMENTAL REFERENCES	
European CDC	http://ecdc.europa.eu/en/healthtopics/zika_virus_infection/factsheet-health-professionals/Pages/factsheet_health_professionals.aspx#sthash.Xj8UPvQH.dpuf
CDC	http://www.cdc.gov/zika/prevention/index.html http://www.cdc.gov/biosafety/publications/bmbl5/bmbl5_sect_viii_f.pdf
ATTC	http://www.atcc.org/products/all/VR-84.aspx#documentation

CONTAINMENT	
BSL2+/ABSL2+	Appropriate safety procedures should always be used with this material. See BMBL Section VIIIF. Biosafety containment requirements: BSL2+/ABSL2+ means BSL2 containment with BSL3 practices and or PPE. Lab specific procedures (SOPs) will outline specific containment and practices and PPE.

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 EPA approved 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	Unknown. Other flaviviruses are susceptible to 70% ethanol, 10% bleach, and 2% glutaraldehyde
Inactivation	Inactivated by heat and low pH.
Survival Outside Host	Unknown.

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 when working with *ZIKV.* Additional PPE may be required depending on lab specific SOPs and containment.
Additional Precautions	All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC). The use of needles, syringes, and other sharp objects should be strictly limited. Additional precautions should be considered with work involving animals or large scale activities.