

Specimen Collection, Storage and Shipment for Molecular, Serological and Tissue Testing for Zika Virus				
Specimen Type	Collection	Minimum Quantity	Specimen Preparation	Specimen Storage & Shipment
Serum	Serum Separator Tube SST (GOLD or TIGER Top) Serum tube (RED Top) When possible collect two tubes each containing 2-5 ml blood, then process and transfer serum into sterile plastic tube.	2-3 mL minimum for RT-PCR and serology 1 mL minimum for pediatric cases – NOTE: cord blood serum is not an acceptable specimen	Centrifuge whole blood tubes within 2 hrs. of collection then pour off serum into sterile tube to avoid hemolysis **	Refrigerate serum (2-8°C) following collection; ship with cold packs ≤ 24 hrs collection to MA SPHL. If storage or transport will > 24 hrs., or if specimen already frozen, store frozen at -20°C (-70°C if possible); ship to MA SPHL on dry ice as Category B.
CSF	Sterile collection Clear Top, Red/Light Gray Top tube or plastic tube with screw cap (2.0 micro tube or 3-5 mL plastic screw cap tube)	1 mL minimum 3-5 mL preferred	CSF specimens must be submitted in a tightly sealed sterile collection tube; wrap the lid with paraffin to avoid leakage.	Refrigerate CSF (2-8°C) following collection; ship with cold packs ≤ 24 hrs collection to MA SPHL. If storage or transport will > 24 hrs., or if specimen already frozen, store frozen at -20°C (-70°C if possible); ship to MA SPHL on dry ice; as Category B.
Urine	Sterile urine cup or conical tube	3-5 mL of urine (more is acceptable) 1 mL minimum for pediatric cases	Submit urine in a tightly sealed sterile container; wrap the lid with paraffin and place in an individual sealed plastic bag.	Refrigerate urine (2-8°C) following collection; ship with cold packs ≤ 24 hrs collection to MA SPHL. If storage or transport will >24 hrs., or if specimen already frozen, store frozen at -20°C (-70°C if possible); ship to MA SPHL on dry ice as Category B.
Amniotic fluid	Collect via amniocentesis and aseptically transfer to sterile conical tube	0.4 mL of amniotic fluid Standard 15-20 mL in conical tube preferred	Submit in a tightly sealed sterile container (i.e. sterile conical tube wrapped with paraffin to avoid leakage).	Refrigerate amniotic fluid (2-8°C) following collection; ship with cold packs ≤ 24 hrs collection to MA SPHL. If storage or transport will be > 24 hrs., or if specimen was already frozen, store frozen at -20°C (-70°C if possible); ship to MA SPHL on dry ice as a Category B.

Tissue† Formalin fixed tissue or Formalin-fixed paraffin-embedded tissue blocks ‡	Placental and fetal membranes	Several full thickness pieces including at least 3 full thickness pieces (0.5–1 cm x 3–4 cm in depth) from middle third of placental disk and at least 1 from the placental disk margin§ 5 x 12 cm strip of fetal membranes	Please include sections of the placental disk, fetal membranes, and pathologic lesions when possible. Also include information about placenta weight and sample both maternal and fetal side of the placenta.	Label all specimens to identify location of sampling site. Fix specimens in formalin*. Volume of formalin used should be about 10x mass of tissue. Place in 10% neutral buffered formalin for a minimum of 3 days. Once fully fixed the tissue can be transferred to 70% ethanol. Storage and shipping at room temperature. Do not ship with frozen specimens.
	Umbilical cord	4 or more 2.5 cm segments of cord	Umbilical cord segments should be obtained proximal, middle, and distal to umbilical cord insertion site on the placenta.	
Do not submit fresh frozen tissue; it is NOT an acceptable specimen for Zika virus testing and will be rejected.				

***Fresh-frozen tissues are not requested. Only formalin-fixed tissues will be considered for testing.**

****Note: Hemolysis may interfere with test performance and will result in an “Unsat” test result.** To avoid hemolysis, separate and pour off serum ≤ 2 hrs post collection.

†For placental testing on symptomatic pregnant women without a definitive diagnosis of Zika virus during pregnancy (test results indicate recent infection with an unspecified flavivirus) or pregnant women without a laboratory confirmed diagnosis of Zika virus infection during pregnancy and infants with birth defects consistent with congenital Zika virus syndrome. Submit multiple full thickness sections of placenta including placental disk, membranes, umbilical cord, and any pathologic lesions when possible. Testing approval for tissues collected from products of conception or fetuses will depend on the gestational age of the fetus, the specific circumstances, and the result of any other tests. Guidance on specific tissues to collect is available through the MDPH Epidemiology Line at 617-983-6800.

‡If shipping bodily fluids with formalin fixed tissue, please package separately to account for the different temperature requirements.

§ As the distribution of Zika virus in tissue may be extremely localized, it is critical that multiple sections of formalin-fixed placental, fetal membranes and umbilical cord tissues be submitted for evaluation.

Additional Information:

- Specimens collected from individuals for Zika virus testing may be transferred within the U.S. as Category B Biological substances in accordance with Department of Transportation Hazardous Materials Regulations (49 CFR Part 171-180). Guidance for packaging samples in accordance with Category B Biological substance requirements can be found in the [CDC/NIH Publication Biosafety in Microbiological and Biomedical Laboratories, 5th edition](#). See additional information about the Department of Transportation [Hazardous Materials Transport Regulations](#).
- Zika virus is an RNA virus. When possible -70°C is optimal for RNA stability. However if your facility does not have access to -70°C, store frozen at -20°C.
- All samples should be submitted with a COMPLETED SS-SLI-1-13 [Specimen Submission Form](#) and couriered or shipped to the address on the form. Please ensure that all sections of the form are complete.

Clinicians: As an arboviral disease, Zika virus is a nationally notifiable condition. Healthcare providers are encouraged to report even suspect Zika cases to their state or local health department to facilitate diagnosis. Please contact the MDPH Epidemiology Line at 617-983-6800, available 24/7.