

Specimen Recommendations

Test Name (Test Code)	Specimen(s)	Volume (min.)	Anticoag/ Medium Preferred (accepted)	Storage	Stability	Recommended Shipping	Special Instructions
Flow Cytometry							
Leukemia / myeloma / lymphoma analysis	whole blood	4 mL (1 mL)	sodium heparin (EDTA)	RT	48 hours	ambient	Protect from extreme temperature. Separate ice pack from specimen.
	bone marrow aspirate	2 mL (0.5 mL)		4°C	48 hours	ice pack	
	bone marrow core biopsy	2 cm (1 cm)	sterile container with 2-4 mL transport media	4°C	48 hours	ice pack	
	fresh tissue	5 mm ³					
	fine needle aspirate	4 mL (0.5 mL)					
	fluids, CSF, pleural, synovial, pericardial fluids	4 mL (0.5 mL)	sterile container with 2-4 mL transport media				
Bronchoalveolar lavage Lymphocyte subsets	bronchoalveolar lavage	10 mL (5 mL)	sterile container with 2-4 mL transport media	4°C	48 hours	ice pack	
PNH; LAD	whole blood	5 mL (0.5 mL)	sodium heparin (EDTA)	RT	48 hours	ambient	
Pathology & Immunohistochemistry							
Bone marrow pathology evaluation (All specimen types required)	aspirate	4 mL (0.5 mL)	EDTA; sodium heparin (cytogenetics)	RT	48 hours	ambient	Use hematopathology collection kit and include CBC report.
	core biopsy	1 cm	formalin or B-Plus	RT	Up to 72 hours	ambient	
	aspirate clot	5 mm ³	formalin or B-Plus		Indefinite		
	aspirate smear	4-6 slides	air dried				
	blood smear	1 slide	air dried				
Immunohistochemistry markers ¹ Please note: If submitting HER2 protein over-expression by immunohistochemistry, HER2(ERBB2) gene amplification by in situ hybridization or estrogen / progesterone receptor expression by immunohistochemistry, the specimen must follow fixation guidelines listed below: 1. Specimens should be immersed in fixative within one hour of the biopsy or resection. 2. If delivery of a resection specimen to the pathology department is delayed (eg,	paraffin embedded tissue	Block or 3 slides (3-5 µM) per marker on adhesion glass	formalin fixed	RT	indefinite	ambient	Protect from extreme temperature with ice pack. Separate ice pack from specimen.

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specimens from remote sites), the tumor should be bisected prior to the immersion in fixative. In such cases, it is important that the surgeon ensure that the identity of the resection margins is retained in the bisected specimen; alternatively, the margins may be separately submitted. 3. The time of removal of the tissue and the time of immersion of the tissue in fixative should be recorded and submitted to the laboratory.							
Molecular Oncology							
Hematological - NGS IgVH somatic hypermutation B cell IGH and/or IGK rearrangement T cell TCR rearrangement Myeloid Extended Panel AML Panel CALR, JAK2 V617F, JAK2 Exon 12, MPL, MYD88	whole blood	5 mL (3 mL)	EDTA or sodium heparin	4°C	96 hours	4°C	Protect from extreme temperature with ice pack. Separate ice pack from specimen.
	bone marrow	3 mL (1 mL)	EDTA or sodium heparin	4°C	96 hours	4°C	
	paraffin embedded tissue	Block or 3 slides (3-5 µM) per marker on adhesion glass	formalin fixed		Indefinite		
	DNA	50µl at 200ng/µl		4°C	96 hours	4°C	
	paraffin embedded tissue	Block or 3 slides (3-5 µM) per marker on adhesion glass	formalin fixed	RT	indefinite	ambient	
Solid Tumor- NGS EGFR, KRAS, BRAF, IDH1/2 genes Colon, Lung, Melanoma, GIST, NRAS, KIT (D816V)	whole blood	5 mL (3 mL)	EDTA or sodium heparin	4°C	96 hours	4°C	
	bone marrow	3 mL (1 mL)	EDTA or sodium heparin	4°C	96 hours	4°C	
	DNA	50µl at 200ng/µl		4°C	96 hours	4°C	
	paraffin embedded tissue	Block or 3 slides (3-5 µM) per marker on adhesion glass	formalin fixed	RT	indefinite	ambient	No heavy metal fixatives. Protect from extreme temperature with ice pack. Separate ice pack from specimen.
EGFR - <i>therascreen</i> [®] - PCR	paraffin embedded tissue	Block or 3 slides (3-5 µM) per marker on adhesion glass	formalin fixed	RT	indefinite	ambient	No heavy metal fixatives. Protect from extreme temperature with ice pack. Separate ice pack from specimen.

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FGFR - <i>therascreen</i> [®] - PCR JAK2 V617F - PCR	paraffin embedded tissue	Block or 3 slides (3-5 µM) per marker on adhesion glass	formalin fixed EDTA or sodium heparin	RT 4°C	indefinite 96 hours	ambient 4°C	No heavy metal fixatives. Protect from extreme temperature with ice pack. Separate ice pack from specimen. Protect from extreme temperature with ice pack. Separate ice pack from specimen.	
	whole blood	5 mL (3 mL)						
	bone marrow	3 mL (1 mL)		4°C	96 hours	4°C		
BCR/ABL major p210 and minor p190 transcript s-qRT PCR, MRD PML RARA qRT, PCR, MRD BCR/ABL major p210 and minor p190 transcripts-qRT PCR, MRD PML/RARA qRT PCR, MRD	DNA	50µl at 50 ng/µl	EDTA or sodium heparin	4°C	96 hours	4°C	Separate ice pack from specimen. Freeze immediately	
	whole blood	(10 mL)		4°C	96 hours	4°C		
	bone marrow	2 mL (1 mL)		-20°C	96 hours	dry ice		
Cytogenetics - Oncology								RNA
Chromosome analysis	Peripheral Blood	5 mL 1 mL (newborn blood) 2 mL (percutaneous umbilical blood)	sodium heparin	RT	72 hours	ambient	4°C to 25°C during transit, but specimens may be transported on refrigerated gel packs. Do not allow the gel pack to come in contact with the specimen. Do not freeze. Extreme temperatures should be avoided.	
	bone marrow	3 mL						
	bone marrow core	5 mm of bone core sample in at least 4 mL tissue culture	transport media (RPMI) using 10 mL sterile transport tube					
	Lymph node	10 mm lymph node sample in at least 4 mL tissue culture						
	Fixed cytogenetically prepared cells	Sterile centrifuge tube Pellet must be visible	3:1, Methanol:Acetic Acid	-28°C -15°C	Fixed cell pellets are stable for years	4°C to 25°C during transit, but specimens may be transported on refrigerated gel packs. Do not allow the gel pack to come in contact with the specimen. Do not freeze. Extreme temperatures should be avoided.		
	whole blood	5 mL	sodium heparin (EDTA)	RT	72 hours	ambient		

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Fluorescence <i>in situ</i> hybridization (FISH) probes for hematological disorders	bone marrow	3 mL					4°C to 25°C during transit, but specimens may be transported on refrigerated gel packs. Do not allow the gel pack to come in contact with the specimen. Do not freeze. Extreme temperatures should be avoided.
	Fixed cytogenetically prepared cells	Sterile centrifuge tube Pellet must be visible	3:1, Methanol:Acetic Acid	-28°C -15°C	Fixed cell pellets are stable for years		4°C to 25°C during transit, but specimens may be transported on refrigerated gel packs. Do not allow the gel pack to come in contact with the specimen. Do not freeze. Extreme temperatures should be avoided.
FISH probes for solid tumors	paraffin embedded tissue	Block or 3 slides (3-5 µM) per marker on adhesion glass	FFPE tissue is acceptable for FISH analysis. Preferred fixative is 10% neutral buffered formalin. Tissues preserved in B5 fixative or decalcified are usually not suitable for FISH. Tumor sections cut 3-5 µm thick and mounted on positively charged organosilane coated (silanized) slides work well. Request several unstained sections (two for each probe) and one H&E stained slide	RT	indefinite	ambient	4°C to 25°C during transit, but specimens may be transported on refrigerated gel packs. Do not allow the gel pack to come in contact with the specimen. Do not freeze. Extreme temperatures should be avoided.
Bladder Cancer FISH	urine	Voided urine must be ≥ 33 mL. Mix voided urine with preservative at 2:1 ratio of urine to preservative	PreservCyt® or Carbowax® solutions	2°C to 8°C	72 hours	ice pack	2°C to 8°C during transit, but specimens may be transported on refrigerated gel packs. Do not allow the gel pack to come in contact with the specimen. Do not freeze. Extreme temperatures should be avoided.

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		for a total volume ≥ 50 mL.					
Cytogenetics - Constitutional							
Chromosome analysis	newborn blood	1 mL	sodium heparin	RT	72 hours	ambient	4oC to 25oC during transit, but specimens may be transported on refrigerated gel packs. Do not allow the gel pack to come in contact with the specimen. Do not freeze. Extreme temperatures should be avoided.
	whole blood	5 mL	sodium heparin				
	umbilical blood	2 mL	sodium heparin				
Infectious Disease							
Chlamydia trachomatis Neisseria gonorrhoeae	cervical cells	3 mL	ThinPrep® or SurePath™	2°C -30°C	21 days	ambient	
	cervical or urethral swab	One swab	APTIMA unisex swab specimen collection	2°C -30°C	60 days	ambient	
	urine	20-30 mL	preservative-free urine collection cup	4°C	24 hours	4°C	Void first 10 mL.
	urine	2 mL	APTIMA urine tube	RT	30 days	ambient	
HPV high risk by Aptima Trichomonas Vaginalis	cervical cells	2 mL (1 mL)	ThinPrep® or SurePath™	RT	21 days	ambient	
HPV genotyping	liquid cytology	2 mL	ThinPrep® or SurePath™	RT	21 days	ambient	
Herpes Simplex Type 1/2 qualitative by real-time PCR	HSV lesion		viral transport media	4°C	96 hours	4°C	Separate ice pack from specimen.
	whole blood	2 mL	EDTA	4°C	96 hours	4°C	
	fresh frozen tissue	5 mm ³	sterile container with 2-4 mL transport medium	4°C	96 hours	4°C	
	swab from any site		viral transport media	-20°C	~	dry ice	Freeze immediately
	CSF	2 mL (1 mL)	sterile container	4°C	72 hours	4°C	Separate ice pack from specimen.
				-20°C	~	dry ice	
		cervical cells	2 mL (1 mL)	ThinPrep® or SurePath™	RT	21 days	ambient