



Test Name (Test Code)	Specimen(s)	Volume (min.)	Anticoag. / medium Preferred (accepted)	Storage	Stability	Shipping	Special Instructions
HEMATOLOGY/ONCOLOGY							
Flow Cytometry							
Comprehensive leukemia/lymphomas analysis and Limited flow analysis	Whole blood	4mL (1mL)	Sodium Heparin (EDTA)	RT	48hrs	Ambient	Protect from extreme temperature.
	Bone marrow aspirate	2mL (0.5mL)					
	BM core biopsy	2cm (1cm)	MPLN transport medium or equivalent (i.e. RPMI, Hanks) (2.0-4.0mL)	4°C	48hrs	Ice pack	Separate ice pack from specimen
	Fresh tissue	5mm ³					
	Fine needle aspirate	Adequate sample					
Fluids, CSF, pleural, synovial, pericardial, etc..fluids	4mL (0.5mL)	Sterile container, addition of 2-4mL MPLN transport medium (for overnight transport)	4°C	48hrs	Ice pack	Separate ice pack from specimen.	
T-cell and extended lymphocyte profile subset analysis.	Whole blood	4mL (1mL)	Sodium Heparin (EDTA)	RT	48hrs	Ambient	Protect from extreme temperature.
Leukocyte adhesion deficiency Paroxysmal nocturnal hemoglobinuria ZAP-70	Whole blood	5mL (0.5mL)	Sodium Heparin (EDTA)	RT	48hrs	Ambient	Protect from extreme temperature.
	Bone marrow	1mL (0.5mL)					
Bronchoalveolar lavage lymphocyte subsets	Bronchoalveolar lavage	10mL (5mL)	Sterile container, addition of 2-4mL MPLN transport medium (for overnight transport)	4°C	48hrs	Ice pack	Separate ice pack from specimen.
Cell Cycle Analysis; DNA Ploidy and S-phase	Whole blood	4mL (2mL)	Sodium Heparin (EDTA, ACD)	RT	48hrs	Ambient	
	Bone marrow	3mL (1mL)					
	Fresh tissue	5mm ³	MPLN transport medium or equivalent (i.e. RPMI, Hanks)	4°C	72hrs	Ice pack	Separate ice pack from specimen.
	Frozen tissue	5mm ³		-20°C	~	Dry ice	Freeze immediately.
	Paraffin embedded tissue	Block	Formalin fixed	RT	Indefinite	Ambient	
	Bladder washing / barbotage	30mL (15mL)	Sterile container	4°C	48hrs	Ice pack	Separate ice pack from specimen.
Leukoreduced WBC count	Whole blood product	200uL	Not EDTA	4°C	48hrs	Ice pack	Separate ice pack from specimen.
	Platelet concentrate	200uL	Sterile tube	RT	48hrs	Ambient	



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Pathology & Immunohistochemistry							
Bone marrow pathology evaluation	Bone marrow core biopsy	1cm	Formalin	RT	48hrs	Ambient	Use Hematopathology collection kit and include CBC report.
	Bone marrow aspirate clot	5mm ³	Formalin				
	Bone marrow aspirate	4mL (0.5mL)	Sodium Heparin preferred for flow cytometry and cytogenetics; EDTA for molecular studies				
	Bone marrow aspirate smear (with spicules)	4-6 slides	Air dried				
	Peripheral blood smear	1 slide	Air dried				
Immunohistochemistry markers and including: Herceptest, ER,PR, EGFR (HER1), P53, ki67, ProEx™ C biomarker	Paraffin embedded tissue	Block	Formalin fixed.	RT	Indefinite	Ambient	If external temperature exceeds 55°C, include ice pack during shipping.
Tumor Markers							
CellSearch™ – circulating tumor cell test	Two tubes of whole blood	10mL (7.5mL)	CellSave® preservative tube	RT	96hrs	Ambient	Specimens should be received within 36 hrs for optimal results.
Cancer antigens (CEA, CA 125, 15-3, 19-9)	Serum	7mL	Gold or Red serum separator tube	4°C	48hrs	Ambient	Centrifuge and refrigerate.
				-20°C	1 week	Dry ice	Centrifuge, freeze if greater than 48hrs.



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Molecular Oncology							
ABL kinase mutation analysis for Gleevec™ resistance	Whole blood	10mL (9mL)	EDTA	4°C	36hrs	Ambient	
	Bone marrow	5mL (2.5mL)					
B cell immunoglobulin heavy chain gene rearrangement by PCR B cell immunoglobulin kappa light chain gene rearrangement BCL2 t(14;18) gene rearrangement by PCR T cell receptor gamma gene rearrangement by PCR	Whole blood	5.0mL (3.0mL)	EDTA	RT	72hrs	Ice pack	Do not allow the ice pack to directly contact the sample.
	Bone marrow	3.0mL (1.0mL)	EDTA	RT	72hrs	Ice pack	
	BM core biopsy	5mm ³	MPLN transport medium or equivalent (i.e. RPMI, Hanks) (2.0-4.0mL)	4°C	72hrs	Ice pack	
	Fresh tissue	5mm ³					
	Fine needle aspirate	3.0mL (2.0mL)					
	Frozen tissue	5mm ³					
	Paraffin-embedded tissue	Block	Formalin fixed	RT	Indefinite	Ambient	No heavy metal fixatives
BCR/ABL t(9;22) by quantitative PCR for initial diagnostic workup and monitoring PML-RARA t(15;17) by quantitative PCR for initial diagnostic workup and disease monitoring	Whole blood	20mL (10mL)	EDTA	4°C	48hrs	Ambient	Refer to TB-PCR-0508 Ship overnight at ambient temperature; protect from extreme heat with cool pack; do not allow to freeze
	Bone marrow	2.0mL (1ml)					
AML mutation analysis, FLT3, NPM1, CEBPA JAK2 V617F mutation analysis	Whole blood	5.0mL min	EDTA (ACD)	RT	7 days	Ambient	Protect from extreme temperature. Do not allow ice pack to directly contact sample.
	Bone marrow	3.0mL (1.0mL)					
HPV genotyping	Liquid cytology	2mL	ThinPrep® PAP solution or TriPath Imaging SurePath™ Test Pack solution	RT	21 days	Ambient	
KRAS mutation, BRAF mutation EGFR mutation	Paraffin embedded tissue	Block	10% neutral buffered formalin fixed	RT	Indefinite	Ambient	If external temperature exceeds 55°C, include ice pack during shipping.
UGT1A1 genotyping	Whole blood	1 mL (400uL)	EDTA (ACD)	RT	24hrs	Ambient	If shipment delayed, refrigerate.
				4°C	7 days	Ice pack	Do not allow the ice pack to directly contact the sample.



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Cytogenetics - Oncology							
Chromosome analysis	Whole blood	7mL (5mL)	Sodium Heparin	RT	48hrs	Ambient	Protect from extreme temperature. For cancer cytogenetics please send WBC count with requisition. Call before sending specimen on Friday. Ship on Saturday for Monday delivery only.
	Bone marrow	3mL (1mL)					
	BM core biopsy or fresh tissue	5mm ³	MPLN RPMI				
	Fine needle aspirate	4mL (2mL)					
	Ascites, gastric, pleural effusions	15mL	Plain tube				
Fluorescence <i>in situ</i> hybridization (FISH) probes for hematological disorders including: <ul style="list-style-type: none"> ▪ F AALL ▪ F PALL ▪ F MPD ▪ F CLL ▪ F MDS ▪ F MM ▪ F ALK ▪ F AML ETO ▪ F API MALT ▪ F ATM ▪ F BCL1 ▪ F BCL2 ▪ F BCL6 ▪ F BCR ABL ▪ F CMYC ▪ F CFBF ▪ F CEP7 ▪ F D1314 ▪ F D20 ▪ F EGR1 ▪ F 4Q12 ▪ F T519T15 ▪ F IGH ▪ F FGFR3F ▪ IGH MAF ▪ F IGH MALT ▪ F IGH MYC ▪ F MALT ▪ F MLL ▪ F MYBD6 ▪ F P53 ▪ F PML RARA ▪ F TEL-AML1 ▪ F T3 ▪ F T4 ▪ F T6 ▪ F T8 ▪ F T10 ▪ F T12 ▪ F SRY 	Whole blood	5mL (3mL)	Sodium Heparin (EDTA)	RT	72hrs		
	Bone marrow	3mL (1mL)					
	Fine needle aspirate	3mL (2mL)	MPLN transport medium or equivalent (i.e. RPMI, Hanks) (2.0-4.0mL)	4°C	72hrs	Ice pack	Separate ice pack from specimen. Specimen should not come into contact with ice-pack.
	Fresh Tissue	5mm ³					
Fluorescence <i>in situ</i> hybridization (FISH) probes for solid tumors including: <ul style="list-style-type: none"> ▪ F CMYC ▪ F EGFR ▪ F EW ▪ F N MYC ▪ F GLI ▪ F P53 ▪ F PTEN ▪ F SYT ▪ F HER2 	Paraffin-embedded tissue	Block	Formalin fixed	RT	Indefinite	Ambient	
UroVysion® in bladder cancer	Bladder washings or urine	50mL (35mL)	ThinPrep® PreserveCyt™ preservative (cytc corp.)	4°C	48hrs	Ice pack	Ship overnight. Separate ice pack from specimen.



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PRENATAL							
Chromosome analysis	Amniotic fluid	30mL (20mL)	2 to 3 sterile tubes	RT	48hrs	Ambient	Protect from extreme temperature. Call before sending specimen on Friday. Ship on Saturday for Monday delivery only if sample is protected from extreme temperature. Include gestational age and due date.
	Newborn blood	1mL min	Sodium Heparin (pediatric tube)				
	Whole blood	7mL (5mL)	Sodium Heparin (pediatric tube)				
	Percutaneous umbilical blood	2mL (1mL)	Sodium Heparin				
Solid tissue chromosome analysis	POC, chorionic villus, fetal tissue	Tissue, 1cm skin biopsy	Sterile tissue culture media	RT	48hrs		Protect from extreme temperature. Call before sending specimen on Friday. Ship on Saturday for Monday delivery only if sample is protected from extreme temperature.
Alphafetoprotein Acetylcholinesterase	Amniotic fluid	2.5mL	Sterile container	RT	24hrs		Include gestational age and due date.
				4°C	2 weeks	Ice pack	Do not freeze.
Viral panel by PCR - CMV, ENT, EBV, Parvovirus B-19, Adenovirus	Amniotic fluid	2mL (1mL)	Sterile container	4°C	24hrs	Ice pack	Do not spin Separate ice pack from specimen.
Cystic Fibrosis Prenatal by PCR	Amniotic fluid	20-30mL	Sterile container	RT	48hrs	Ambient	Documentation of maternal and paternal CF mutations.
	Maternal whole blood	5ml (3mL)	EDTA (ACD)	RT	24hrs		
Fluorescence <i>in situ</i> hybridization – Constitutional							
AneuVysion®: 13+/18+/21+/X/Y	Amniotic fluid	5mL	1 sterile tubes	RT	48hrs	Ambient	Protect from extreme temperature. Call before sending specimens on Friday. Ship on Saturday for Monday delivery only if sample is protected from extreme temperature.
	Products of conceptions		Sterile tissue culture media				
TelVysion®: Subtelomere	Whole blood	5mL (3mL)	Sodium heparin	RT	48hrs	Ambient	
	Amniotic fluid	20-30mL	2 to 3 sterile tubes				
	Solid tissue biopsy	5mm ³	Sterile tissue culture media				



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Fluorescence <i>in situ</i> hybridization – Constitutional							
Angelman syndrome del 15q11q13 Cri-du-Chat syndrome deletion 5p15.2 DiGeorge/ Velo-Cardio-Facial syndrome Kallmann syndrome del KAL1(Xp22.3) Miller-Dieker syndrome / Lissencephaly Phelan-McDermid syndrome Prader-Willi/Angelman Smith-Magenis syndrome SRY/CEP X del Yp11.3 Steroid Sulfatase deficiency TelVysion: Subtelomeres: trisomy 21 Wolf-Hirschhorn syndrome Williams syndrome	Whole blood	5mL (3mL)	Sodium Heparin (EDTA)	RT	72hrs	Ambient	Specimen volume includes chromosome analysis. Protect from extreme temperature. Ship on Saturday for Monday delivery only if sample is protected from extreme temperature.
	Amniotic fluid	20-30mL	2 to 3 sterile tubes				



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HUMAN GENETICS							
Cystic fibrosis 32 mutation analysis panel by PCR Cystic fibrosis Intron 8 5T/7T/9T by PCR	Whole blood	5mL (3mL)	EDTA (ACD)	RT	24hrs	Ambient	Separate ice pack from specimen
				4°C	96hrs	Ice pack	
	Buccal cells	Two swabs	MPLN Buccal collection kit	RT	21 days	Ambient	
	Cervical cells	2mL (1mL)	ThinPrep® PAP solution or SurePath™ Test Pack	RT	21 days	Ambient	
Factor II (Prothrombin) Factor V Leiden MTHFR C677T AND A1298C mutation PAI-1 mutation	Whole blood	5mL (3mL) for one or more factor assays	EDTA (ACD)	RT	24hrs	Ambient	If shipment delayed, store at 4°C and ship with ice pack (do not allow the sample to be in direct contact with the ice pack)
				4°C	4 days	Ice pack	
Human Identity genotyping	Paraffin-embedded tissue	Block	Formalin fixed	RT	Indefinite	Ambient	Various specimens, please call
	Whole blood	5mL (3mL)	EDTA (ACD)	4°C	96hrs	Ice pack	Separate ice pack from specimen
	Whole blood	5mL (3mL)	EDTA (ACD)	RT	24hrs	Ambient	
	Buccal cells	4 dry swabs	MPLN Buccal collection kit	RT	21 days	Ambient	
Warfarin Sensitivity	Whole blood	1mL	EDTA	4°C	10 days	Ice pack	Separate ice pack from specimen



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INFECTIOUS DISEASE							
Chlamydia trachomatis Neisseria gonorrhoeae	Cervical cells	3mL	ThinPrep® PAP solution or SurePath™ Test Pack	2-30°C	14 days	Ambient	
	Cervical cells in liquid cytology media (ThinPrep or SurePath)	1mL	Transferred to APTIMA specimen transfer (GREEN) tube	2-30°C	14 days	Ambient	
	Cervical or urethral swab	One swab	APTIMA Unisex Swab Specimen Collection (WHITE) Kit	2-30°C	60 days	Ambient	
	Urine	20-30mL	Preservative-free urine collection cup	4°C -20°C	24hrs	Ice pack	Void first 10mL
	Urine	2mL	APTIMA urine specimen transport (YELLOW) tube		30 days		
Hepatitis C qualitative by PCR Hepatitis C quantitative by PCR Hepatitis C Genotyping	Serum	1.5mL (500uL)	Separated from clot	4°C	72hrs	Ice pack	Separate ice pack from specimen
				-20°C	~	Dry ice	Freeze within 24 hrs
	Plasma	1.5mL (500uL)	EDTA separate from blood within 6 hrs	4°C	72hrs	Ice pack	Separate ice pack from specimen
				-20°C	~	Dry ice	Freeze within 24 hrs
Herpes Simplex Type I and 2 qualitative by real-time PCR	HSV lesion		MPLN path. collection kit	RT	~	Ambient	
	Whole blood	2mL	EDTA	4°C	96hrs	Ice pack	Separate ice pack from specimen
	Fresh Tissue	5mm ³	MPLN transport medium or equivalent (i.e. RPMI, Hanks, M4 media) (2.0-4.0mL)	4°C	96hrs	Ice pack	Separate ice pack from specimen
	Frozen tissue	5mm ³		-20°C	~	Dry ice	Freeze immediately
	Swab from any site		MPLN pathogen collection kit or viral transport media	4°C	96hrs	Ice pack	Separate ice pack from specimen
	CSF	2mL (1mL)	Sterile container. Do not dilute	4°C	72hrs	Ice pack	Refrigerated CSF MUST be shipped within 24 hours of collection
				-20°C	~	Dry ice	Freeze within 4 hrs
	Cervical cells	2mL (1mL)	ThinPrep PAP solution or TriPath Imaging SurePath Test Pack solution	RT	21 days	Ambient	
	Amniotic fluid	1 mL	Sterile container. unspun	RT	48hrs	Ambient	

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INFECTIOUS DISEASE							
Human Immunodeficiency virus quantitative by PCR	Plasma	3mL (1mL)	EDTA separate from blood within 6 hrs	4°C	72hrs	Ice pack	Separate ice pack from specimen
				-20°-80°C	~	Dry ice	Freeze within 24 hrs
Human Papillomavirus High risk by Hybrid Capture 2	Cervical cells	4mL	ThinPrep	RT	21 days	Ambient	
	Cervical cells	2mL	SurePath	RT	21 days	Ambient	
	Cervical/vaginal swab	swab	Digene collection tube	RT	2 weeks	Ambient	
				4°C	3 weeks	Ice pack	Separate ice pack from specimen
				-20°C	3 months	Dry ice	Freeze within 24 hrs
Biopsy	5mm ³ (2mm ³)	Digene collection tube	-20°C	3 months	Dry ice	Freeze immediately	
HPV genotyping	Liquid cytology	2mL	ThinPrep PAP solution or SurePath™ Test Pack solution	RT	21 days	Ambient	
CTNG and HPV HR	Cervical cells	10mL	ThinPrep PAP solution or	RT	14 days	Ambient	
	Cervical cells	8mL	SurePath™ Test Pack solution				