



Quest Diagnostics

# Hematopathology Test Menu

Quest Diagnostics is the nation's leading provider of diagnostic testing, information and services. Quest Diagnostic Nichols Institute, the first and most respected provider of esoteric testing, performs most of our flexible, state-of-the-art tests. Our menu is unsurpassed. Hematologists, oncologists and pathologists – whatever their testing requirements – can always rely on Quest Diagnostics for clear, concise and accurate results.

	TEST NAME	SPECIMEN REQUIREMENTS	CLINICAL APPLICATIONS
Morphology	Hematopathology Consultation	4-6 air-dried bone marrow aspirate smears; 1 peripheral blood smear; bone marrow trephine biopsy in formalin; bone marrow clot in formalin, CBC or copy of recent report	To diagnose and classify hematologic disorders in bone marrow biopsies, aspirates, lymph nodes, and other tissues
	CBC w Pathologist review of smear	1 EDTA (lavender top) with blood smears	Diagnosis and monitoring therapy in leukemia/lymphoma
	Pathologist review of peripheral smear	1 EDTA (lavender top) with blood smears	Diagnosis and monitoring therapy in leukemia/lymphoma
	Hematopathology Consultation on previously diagnosed material	N/A	Diagnosis and monitoring therapy in leukemia/lymphoma
Immunohistochemistry	Hodgkin's Lymphoma Panel	Formalin-fixed paraffin-embedded tissue	Hodgkin's disease
	Non-Hodgkin's Lymphoma Panel	Formalin-fixed paraffin-embedded tissue	Lymphocytic lymphoma
	Mantle Cell Panel	Formalin-fixed paraffin-embedded tissue	Mantle cell lymphoma
	Gleevec Sensitivity	Formalin-fixed paraffin-embedded tissue	Determine eligibility for Gleevec treatment in patients with CML and c-kit (CD117) positive gastrointestinal stromal tumors (GISTs)
	Micrometastasis	Formalin fixed paraffin embedded tissue	To detect micrometastases of epithelial cell origin, to determine the stage of epithelial cancers, and to predict cancer recurrence/relapse and diminished overall survival
Flow Cytometry	Leukemia Lymphoma Evaluation	Whole blood, bone marrow, sodium heparin (green top), EDTA (lavender top), ACD solution B (yellow top), fresh tissue, body fluid	A patient-specific, detailed leukemia/lymphoma interpretation issued by a hematopathologist for differential diagnosis, therapeutic monitoring, and detection of relapse
	Multiple Myeloma	Sodium heparin (green top)	Diagnosis of multiple myeloma (marked predominance of either kappa or lambda light chain supports a diagnosis of multiple myeloma)
	Rituxan Sensitivity (CD20)	Sodium heparin (green top), EDTA (lavender top), ACD solution B (yellow top), fresh tissue, body fluid	Determine eligibility for Rituxan treatment in patients with B-cell non-Hodgkin's lymphoma (NHL)
	Ontak Sensitivity (CD25)	Whole blood, bone marrow, sodium heparin (green top), EDTA (lavender top), ACD solution B (yellow top), fresh tissue, body fluid	Determine eligibility for Ontak therapy in patients with persistent and recurrent cutaneous T-cell lymphomas (CTCLs)
	Mylotarg Sensitivity (CD33)	Whole blood, bone marrow, sodium heparin (green top), EDTA (lavender top), ACD solution B (yellow top), fresh tissue, body fluid	Determine eligibility for Mylotarg therapy in patients with acute myeloid leukemia (AML)
	Campath Sensitivity (CD52)	Whole blood, bone marrow, sodium heparin (green top), EDTA (lavender top), ACD solution B (yellow top), fresh tissue, body fluid	Determine eligibility for Campath-H treatment in patients with chronic lymphocytic leukemia (CLL)
	Intracellular Markers	Whole blood, bone marrow, sodium heparin (green top), EDTA (lavender top), ACD solution B (yellow top), fresh tissue, body fluid	Leukemia/lymphoma
	DNA Cell Cycle	Sodium heparin (green top)	Determines DNA ploidy of malignant cells (diploid versus aneuploid). It also determines the S-phase fraction or proliferation rate of the tumor, an indicator of tumor aggressiveness.
	Surface Light Chains	Sodium heparin (green top)	Diagnosis and monitoring therapy in leukemia/lymphoma (interpretation in conjunction with other clinical features)
	Surface Marker	Sodium heparin (green top)	Diagnosis and monitoring therapy in leukemia/lymphoma (interpretation in conjunction with other clinical features)
	Red Cell CD55/CD59	1 EDTA (lavender top)	Diagnosis of paroxysmal nocturnal hemoglobinuria (PNH)
	Apoptosis, Annexin V	1 EDTA (lavender top)	Diagnosis and monitoring therapy in leukemia/lymphoma. Results >10% of Annexin V indicates positivity for apoptosis or effectiveness of therapy in killing the targeted cells.
	Apoptosis, Mitochondrial Membrane Potential	1 EDTA (lavender top)	Diagnosis and monitoring therapy in leukemia/lymphoma. The percent of cells positive using DePsipher equals the percent of cells undergoing apoptosis.
	Cell Proliferation (BrdU Incorporation)	1 EDTA (lavender top)	Diagnosis and monitoring therapy in leukemia/lymphoma. The percent of cells positive for BrdU equals the percent of proliferating cells. The percent of cells positive for BrdU and CD34 indicates the number of proliferating CD34 positive cells.
	Cell Sorting	1 EDTA (lavender top)	Diagnosis and monitoring therapy in leukemia/lymphoma (sort or isolate cell population of interest)
	ZAP-70	EDTA (lavender top), sodium heparin (green top), ACD (yellow top)	Prognostic marker for chronic lymphocytic leukemia (CLL)

	TEST NAME	SPECIMEN REQUIREMENTS	CLINICAL APPLICATIONS
Cytogenetics and FISH	<b>Chromosome Analysis, Hematologic Malignancy</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Diagnosis and prognosis in leukemia/lymphoma
	<b>Chromosome Analysis, CLL/LPD</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Diagnosis and prognosis in lymphoproliferative diseases
	<b>Chromosome Analysis, Lymph Node</b>	Lymph node biopsy 5x5 mm. Sterile container in Hanks', Ringers solution or culture medium with antibiotics.	Diagnosis and prognosis in lymphoproliferative diseases
	<b>Chromosome Analysis, Solid Tumor</b>	Solid tumor biopsy 5x5 mm. Sterile container in Hanks', Ringers solution or culture medium with antibiotics.	Diagnosis and prognosis in solid tumors
	<b>FISH, CML/ALL, bcr/abl Translocation 9,22</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Diagnosis, prognosis and monitoring therapy in chronic myelogenous leukemia (CML) and acute lymphocytic leukemia (ALL)
	<b>FISH, AML M3, PML/RARA, Translocation 15,17</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Diagnosis, prognosis and monitoring therapy in acute promyelocytic leukemia (APL)
	<b>FISH, AML, AML1/ETO Translocation 8,21</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Diagnosis, prognosis and monitoring therapy in acute myelogenous leukemia (AML)
	<b>FISH, X/Y, Post Bone Marrow Transplant</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Monitoring engraftment in transplant patients
	<b>FISH, MLL (11q23) Gene Rearrangement</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Diagnosis, prognosis in leukemia and myelodysplastic syndrome (MDS)
	<b>FISH, ALL, TEL/AML1 Translocation 12,21</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Differential diagnosis of acute lymphoblastic leukemia (ALL); therapeutic monitoring and determining prognosis of patients with ALL
	<b>FISH, AML, CBFB/MYH11, Inversion 16</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Diagnosis, prognosis and monitoring disease in acute myelogenous leukemia (AML-M4 Eo)
<b>FISH, B-Cell Chronic Lymphocytic Leukemia (B-CLL) Panel</b>	Bone marrow (preferred) or whole blood, sodium heparin (green top). Bone marrow transport medium available upon request.	Diagnosis and prognosis of B-cell chronic lymphocytic Leukemia	
Molecular (DNA, RNA) Studies	<b>B-Cell Gene Rearrangement</b>	EDTA (lavender top), whole blood, bone marrow, frozen tissue, fresh tissue in RPMI, formalin-fixed paraffin-embedded tissue	To diagnose B-cell malignancies, to determine leukemia and lymphoma lineage, and detect minimal residual disease or recurrence
	<b>B-Cell Gene Rearrangement, Quantitative</b>	EDTA (lavender top), whole blood, bone marrow, frozen tissue, fresh tissue in RPMI, formalin-fixed paraffin-embedded tissue	This test is particularly useful to identify minimal residual disease or early recurrence in patients with previous diagnosis of B-cell neoplasm. It can also be used to establish clonality of B-cell receptor gene rearrangement for the diagnosis of T-cell lymphoid neoplasms.
	<b>T-Cell Gene Rearrangement</b>	EDTA (lavender top), whole blood, bone marrow, frozen tissue, fresh tissue in RPMI, formalin-fixed paraffin-embedded tissue	To diagnose T-cell malignancies, to determine leukemia and lymphoma lineage, and to detect minimal residual disease or recurrence
	<b>TCR-gamma Gene Rearrangement, Quantitative</b>	Whole blood, bone marrow, EDTA (lavender top), fresh tissue, frozen tissue, formalin-fixed paraffin-embedded tissue	This test is particularly useful to identify minimal residual disease or early recurrence in patients with previous diagnosis of T-cell neoplasm. It can also be used to establish clonality of T-cell receptor gene rearrangement for the diagnosis of T-cell lymphoid neoplasms.
	<b>bcl-1/JH t(11;14), Quantitative</b>	EDTA (lavender top), bone marrow	To diagnose mantle cell lymphoma and to detect minimal residual disease or recurrence
	<b>bcl-2/JH t(14;18), Quantitative</b>	EDTA (lavender top), bone marrow	To distinguish follicular lymphoma from benign lymphoid hyperplasia and to monitor B-cell follicular lymphoma patients for minimal residual disease or recurrence
	<b>bcr/abl t(9;22), Quantitative</b>	EDTA (lavender top), bone marrow	To diagnose chronic myeloid leukemia (CML), and a subset of acute lymphoblastic leukemia (ALL) with bcr/abl translocation. To monitor the same patient sequentially for therapeutic response, minimal residual disease (MRD) and relapse
	<b>bcr/abl t(9;22), Quantitative, reflex to subtype</b>	EDTA (lavender top), bone marrow	To diagnose chronic myeloid leukemia (CML) and a subset of acute lymphoblastic leukemia (ALL) with bcr/abl translocation and to identify the three specific types of bcr/abl transcript (e1a2, b2a2 and b3a2)
	<b>PML/RAR-alpha t(15;17) Translocation, Quantitative</b>	EDTA (lavender top), bone marrow	To diagnose acute promyelocytic leukemia (APL or AML FAB M3) and predict therapeutic response to all-trans-retinoic acid. To monitor the same patient sequentially for therapeutic response, minimal residual disease (MRD) and relapse.
	<b>CBFB/MYH11 in(16), Quantitative</b>	EDTA (lavender top), whole blood, sodium heparin (green top), lithium heparin	To diagnose AML with inv (16) (AML FAB M4Eo) and to monitor the same patient sequentially for therapeutic response, minimal residual disease (MRD) and relapse
	<b>AML1/ETO t(8;21), Quantitative</b>	EDTA (lavender top), whole blood, bone marrow, sodium heparin (green top), ACD Solution B (yellow top)	To diagnose AML with t(8;21) translocation and to monitor the same patient sequentially for therapeutic response, minimal residual disease (MRD) and relapse
	<b>FLT3 Mutations</b>	EDTA whole blood, sodium heparin (green top), lithium heparin (green top)	The most common molecular abnormality in AML. Can be used for diagnosis, prediction of response to therapy (FLT-3 inhibitors) and prognosis
	<b>IgVH Gene Mutations</b>	EDTA (preferred) (lavender top), whole blood, bone marrow aspirate, sodium heparin (green top), ACD Solution B (yellow top)	To determine prognosis and predict clinical behavior of patients with chronic lymphocytic leukemia (CLL)
	<b>ABL Kinase Domain Mutations in CML</b>	EDTA (lavender top), whole blood, bone marrow aspirate	The ABL kinase mutation assay may detect Imatinib resistant mutations before clinical relapse and identify candidate suitable for alternative treatment
	<b>alpha Thalassemia Mutation</b>	EDTA (lavender top), sodium heparin (green top), lithium heparin (green top), ACD solution B (yellow top)	To diagnose alpha-thalassemia

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Miscellaneous	<b>CLL Prognostic Panel, Comprehensive</b>	Collect <b>ALL</b> 3 collection tubes: EDTA (lavender top) <b>and</b> sodium heparin (green top) <b>and</b> serum (red top)	To assist clinicians in risk stratification of CLL patients. Comprehensive panel includes: IgVH mutation, Zap70, CD38, B-CLL FISH panel (11q, 17p, 13q, trisomy 12), Beta-2 microglobulin, Chromosome Analysis - karyotyping. All tests can be ordered individually.
	<b>CLL Prognostic Panel, w/o Karyotype</b>	Collect <b>ALL</b> 3 collection tubes: EDTA (lavender top), sodium heparin (green top) <b>and</b> serum (red top)	To assist clinicians in risk stratification of CLL patients. Panel includes everything the comprehensive panel contains except Chromosome Analysis karyotyping: IgVH mutation, Zap70, CD38, B-CLL FISH panel (11q, 17p, 13q, trisomy 12), Beta-2 microglobulin. Although karyotyping may provide additional information that is not detected by FISH, this panel is considered by most investigators as complete for prognostic evaluation. All tests can be ordered individually.
	<b>CLL Prognostic Panel, Monitoring</b>	Collect <b>ALL</b> 3 collection tubes: EDTA (lavender top), sodium heparin (green top) <b>and</b> serum (red top)	To assist clinicians in monitoring CLL patients and predict progression. Monitoring panel includes: Zap70, CD38, Beta-2 microglobulin, B-CLL FISH panel (11q, 17p, 13q, trisomy 12). All tests can be ordered individually.
	<b>CLL Prognostic Panel, Limited</b>	Collect <b>BOTH</b> EDTA (lavender top) and sodium heparin (green top)	To assist clinicians in risk stratification of CLL patients. Limited panel includes: IgVH mutation, Zap70, B-CLL FISH panel (11q, 17p, 13q, trisomy 12). All tests can be ordered individually.

Expect more.™ | *Your patients expect more from you, and you can expect more from Quest Diagnostics.*

For more information on Hematopathology testing, contact your Quest Diagnostics sales representative or visit us at [www.questdiagnostics.com](http://www.questdiagnostics.com).

