



A V A I L A B L E F I S H A S S A Y S

The MGL Cytogenetics Laboratory offers chromosome analysis on leukemic blood and bone marrow specimens.

Reason for Referral:

Chromosome analysis is indicated for individuals with particular leukemias and hematologic disorders. A chromosome analysis on bone marrow or leukemic blood may be helpful in defining the specific form of leukemia and/or may aid in providing prognostic information. In patients who have had a bone marrow transplant, chromosome analysis may be useful in monitoring engraftment.

Testing Methodology:

Depending on the indication, G-band chromosome analysis is performed on stimulated or unstimulated blood or bone marrow cells.

Specimen Requirements:

Bone Marrow Samples: Sodium heparin tubes (green top) Sample tubes must be labeled

as bone marrow or oncology blood
Children: Minimum 0.5 -2.0 CC
Adult/Child: Minimum 3.0 -5.0 CC

Leukemic Blood Samples: Sodium heparin tubes (green top) Sample tubes must be labeled as bone marrow or oncology blood (White count > 15,000 with approximately 10% blasts)
Children: Minimum 0.5 -2.0 CC
Adult/Child: Minimum 3.0 -5.0 CC

Turnaround Time:

Bone Marrow: Average 5-7 days
Oncology Blood: Average 5-7 days
Tissue Biopsy: Average 14-21 days

Shipping and Handling:

All tubes must be labeled with the patient's name and date of birth, and a completed requisition form must accompany each

sample. The requisition form must include the specific indication for testing. If the laboratory is billing the patient's insurance, please enclose a copy of the insurance card. Specimens must be sent the same day as collected and arrive in the laboratory within 48 hours of venipuncture or bone marrow biopsy. Ship at room temperature. Do not heat or freeze. Please call the laboratory to notify them of the incoming sample.

**Medical Genetics Laboratories
Grand Blvd. Receiving Dock
2450 Holcombe Blvd.
Houston, Tx 77021**

Prepaid shipping kits are available upon request: Please call MGL at 1-800-411-gene (4363).

Available FISH Assays

Neoplasm	Cytogenetic Aberration/Locus	Probe Name	Detection
Chronic Myeloproliferative diseases			
Chronic myelogenous leukemia	t(9;22)(q34;q11.2)	BCR/ABL	Detects BCR/ABL gene rearrangement
Hypereosinophilic syndrome	4q12 deletion	CHIC2	Detects deletions of CHIC2
Polycythemia vera	t(9;22)(q34;q11.2)	BCR/ABL	Diagnosis requires exclusion of BCR/ABL gene rearrangement
Essential thrombocythemia	t(9;22)(q34;q11.2)	BCR/ABL	Diagnosis requires exclusion of BCR/ABL gene rearrangement
Myelodysplastic/myeloproliferative diseases			
Chronic myelomonocytic leukemia	7cen	D7Z1	Detects monosomy 7
Myelodysplastic syndromes (MDS)			
Myelodysplastic Disorder (MDS) FISH Panel (Probes can be ordered individually)	5p15.2/5q31	D5S721, D5S23/EGR1	Detects deletions or other aberrations of chromosome 5
	7q11.23/7q31	ELN, LIMK1, D7S613, D7S486, D7S522	Detects deletions or other aberrations of chromosome 7
	8cen	D8Z2	Detects gain of chromosome 8
	20q12	D20S108	Detects deletions in the long arm of chromosome 20
	11q23	MLL	Detects MLL gene rearrangement
Acute myeloid leukemia (AML)			
AML, FAB type M2	t(8;21)(q22;q22)	ETO/AML1	Detects ETO/AML1 gene rearrangement
Acute promyelocytic leukemia, FAB type M3	t(15;17)(q24;q21.1) and variants	PML/RAR α	Detects PML and/or RAR α gene rearrangement
AML, FAB type M4eo	inv(16)(p13q22) or t(16;16)(p13;q22)	CBF β	Detects CBF β gene rearrangement
AML with 11q23 abnormalities	11q23	MLL	Detects MLL gene rearrangement
AML and MDS, therapy related			
Alkylating Agent Related	5p15.2/5q31	D5S721, D5S23/EGR1	Detects deletions or other aberrations of chromosome 5
	7q11.23/7q31	ELN, LIMK1, D7S613/ D7S486, D7S522	Detects deletions or other aberrations of chromosome 7
Topoisomerase II inhibitor-related	11q23	MLL	Detects MLL gene rearrangement
Precursor B and T-cell Neoplasms			
Precursor B-lymphoblastic leukemia/lymphoma (ALL)	t(9;22)(q34;q11.2)	BCR/ABL	Detects BCR/ABL gene rearrangement
	t(12;21)(p13;q22)	TEL/AML1	Detects TEL/AML1 gene rearrangement
	11q23 rearrangement	MLL	Detects MLL gene rearrangement
Precursor T-lymphoblastic leukemia/lymphoma	9q34	ABL	Detects ABL Precursor T-lymphoblastic gene amplification

	9p21	p16	Detects deletion of the p16 gene
Mature B-cell Neoplasms			
Chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL) FISH Panel (Probes can be ordered individually)			
	11q22.3	ATM	Detects deletions of the ATM gene
	12cen	D12Z3	Detects gain of chromosome 12
	13q14, 13q34	RB1, D13S319	Detects deletions of the RB1 region and loss of chromosome 13
	17p13.1	TP53	Detects deletions of the TP53 gene
	6q23	MYB	Detects deletions of chromosome 6q
	14q32	IGH	Detects translocations involving 14q32
Multiple myeloma (MM) FISH Panel (Probes can be ordered individually)			
	t(11;14)(q13;q32)	CCND1(BCL1)/IGH	Detects CCND1/IGH gene rearrangement
	13q14	RB1	Detects deletions of the RB1 region
	17p13.1	TP53	Detects deletions of the TP53 gene
Follicular lymphoma	t(14;18)(q32;q21)	IGH/BCL2	Detects IGH/BCL2 gene rearrangement
Mantle cell lymphoma	t(11;14)(q13;q32)	CCND1(BCL1)/IGH	Detects CCND1(BCL1)/IGH gene rearrangement

**DUAL COLOR
PROBES
FOR LSI MYC**

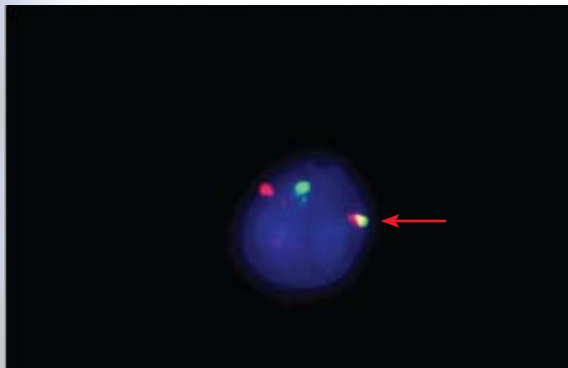


Figure 1. An abnormal nucleus showed an orange/green fusion (101G1F) signal as depicted by the arrow indicating positive for the MYC gene rearrangement on 8q24.

**LSI BCR/ABL +9Q34 TRICOLOR,
DUAL FUSION TRANSLOCATION
PROBE FOR DETECTION
OF A BCR/ABL GENE
REARRANGEMENT**

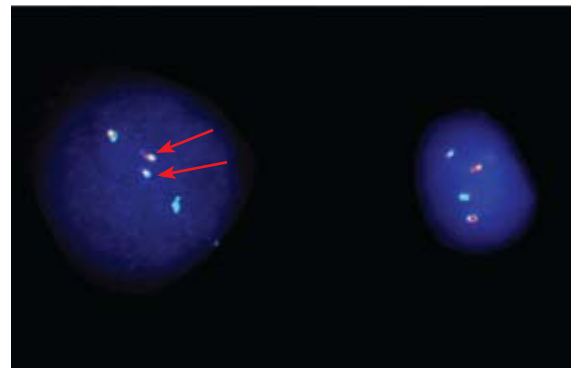


Figure 2. An abnormal nucleus with one aqua/orange, one green, and two orange/green fusion (as indicated by the arrows) signal pattern indicating positive for a bcr/abl gene rearrangement.

**LSI CBFβ DUAL COLOR,
BREAK APART
REARRANGEMENT
PROBE**

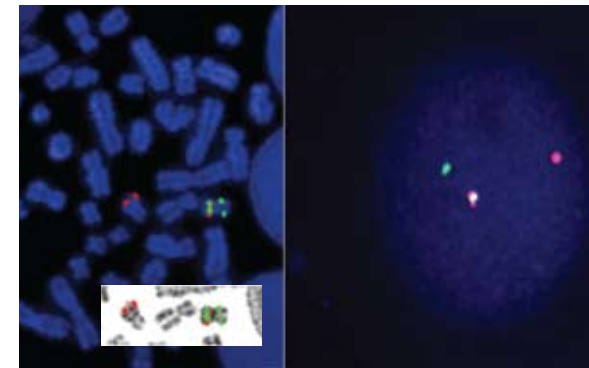


Figure 3. A cell with the t(16;16) exhibiting one red and one green signal while the normal CBFβ allele is seen as a red/green fusion as shown on the right. On the left, the t(16;16) in a metaphase contains the red signal on one arm and the green signal on the other chromosome 16 arm, indicating that the CBFβ gene split apart as a result of the translocation, consistent with the diagnosis of AML.



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