Baylor Miraca
Genetics Laboratories

Cancer Genetics Testing

CANCER FISH PROBES – INDIVIDUAL AND PANEL TESTS

DISEASE	PROBE	ABNORMALITY	PROGNOSIS	TEST CODE
Acute Lymphoblastic Leukemia (ALL)				
	ALL FISH Panel (includes all probes below)			**8010**
	LSI MYB/CEP6	6q23 deletion	Associated with variable prognosis, overall, similar to normal chromosome group. Found in ~5% adult ALL cases and 10-20% childhood ALL.	
	LSI p16 (CDKN2A)	9p21.3 deletion	Variable prognosis. Childhood ALL: Frequencies vary in different ALLs, average ~10%. Adult ALL: Found in ~10% adult ALL cases.	
	LSI BCR/ABL with ASS	t(9;22)	Associated with poor prognosis. Found in ~20% adult ALL and 2-5% childhood ALL cases.	
	LSI ETV6 (TEL)/AML1 (RUNX1)	t(12;21)	Associated with favorable prognosis. Childhood ALL: Found in 25% B-cell childhood ALL cases. Associated with favorable prognosis. Adult ALL: Found in 1-4% adult ALL.	
	LSI MLL	t(11;?), del (11)	Associated with poor prognosis. MLL rearrangements are found in ~22% of all ALL cases and in 70-90% of infants ALL.	
	LSI IGH	t(14;?)	Prognosis is dependent on translocation partner. Found in 2-3% of ALL cases.	
Acute Myeloid Leukemia (AML)				
	AML FISH Panel (includes all probes below)			**8000**
	CEP 8 (D8Z2)	Trisomy 8	Associated with intermediate to poor prognosis. Found in 10-15% AML cases.	
	LSI AML1 (RUNX1)/ETO	t(8;21)	Associated with favorable prognosis. Found in 7-12% AML cases. Reported at higher frequency in children than adults.	
	LSI MLL	t(11;?), del(11)	Associated with poor prognosis. MLL-associated rearrangements are found in 10% of all AML cases and in 50% of infants with AML.	
	LSI PML/ RARα	t(15;17)	Associated with favorable prognosis. Found in 5-8% AML cases. Found in ~100% of acute promyelocytic cases.	
	LSI CBFB	t(16;16), inv(16)	Associated with favorable prognosis. Found in 5-8% AML cases.	

DISEASE	PROBE	ABNORMALITY	PROGNOSIS	TEST CODE
Chronic Lymphocytic Leukemia (CLL)				
	CLL FISH Panel (includes all probes below)			**8040**
	LSI MYB/ CEP 6	6q23 deletion	Associated with intermediate prognosis. Found in 3-10% CLL cases.	
	LSI ATM	Del (11q22)	Associated with poor prognosis. Found in 12-21% CLL cases.	
	CEP 12	Trisomy 12	Trisomy 12: Associated with intermediate prognosis. Found in 15-18% CLL cases.	
	LSI p53/CEP 17	Del (17p13)	Associated with poor prognosis. Found in 5-10% CLL cases. Associated with chemotherapy resistance.	
	LSI IGH	t(14;?)	Prognosis associated with translocation partner. Determines presence of translocation. Found in 2-7% CLL cases.	
	LSI D13S319/ LSI LAMP1	Mono 13, del (13)	Chromosome 13 deletion alone: Associated with favorable prognosis found in 40-55% CLL cases.	
Myelodysplastic Syndrome (MDS)				
	MDS FISH Panel (includes all probes below)			**8005**
	LSI EGR1/5p15.2	Mono 5, del (5)	Associated with favorable prognosis as only cytogenetic abnormality in MDS. Associated with poor prognosis in therapy-related MDS/AML or de novo AML (10-25% of cases). Most common cytogenetic abnormality in MDS and AML (found in 20-30% MDS cases).	
	LSI D75486/ CEP 7	Mono 7, del (7)	Associated with poor prognosis. Found in ~30% and ~20% cases of RAEB and CMML, respectively. Associated with treatment resistance.	
	CEP 8	Trisomy 8	Intermediate prognosis as sole abnormality. Found in 10-20% of all MDS and AML cases. About 90% of cases with trisomy 8 as the only chromosome aberration have AML or MDS.	
	LSI MLL	t(11;?), del (11)	Associated with poor prognosis.	
	LSI D20S108	Del (20q12)	Associated with favorable prognosis. Found in 4-5% MDS cases as sole abnormality.	

DISEASE	PROBE	ABNORMALITY	PROGNOSIS	TEST CODE
Multiple Myeloma (MM)				
	MM FISH Panel (includes all probes below)			**8015**
	CEP 9	Trisomy 9	Hyperdiploidy associated with favorable prognosis. Found in 12-58% of all MM cases.	
	LSI RB1	Del (13q14.3)	Associated with poor prognosis. Found in 30-50% of all MM cases.	
	LSI IGH	t(14;?)	Prognosis associated with translocation partner. Incidence increases with stage of disease.	
	CEP 15	Trisomy 15	Associated with favorable prognosis if as part of hyperdiploidy. Found in 25-40% of all MM cases. Trisomy 15 is uncommon as the sole chromosomal abnormality.	
	LSI p53	Del (17p13)	Associated with poor prognosis. Found in 5-10% of cases at time of diagnosis.	
Non-Hodgkin's Lymphoma (NHL)				
	NHL FISH Panel (includes all probes below)			**8020**
	LSI ALK	t(2;5)	Found in over 50% of anaplasic large cell lymphoma (ALCL) cases. Associated with favorable prognosis.	
	LSI BCL-6	t(3;?)	Increased expression of BCL-6 is found to be associated with favorable prognosis. It is unclear as to what effect a BCL-6 translocation has on prognosis. Found in 5% to 15% of follicular lymphomas, and 20% to 40% of DLBCL cases.	
	LSI ATM/p53	Del (11q22), Del (17p11)	Del (11) : The overall incidence in NHL is 4-5%. Found in up to 70% of all mantle cell lymphoma cases. Associated with variable to poor prognosis. Del (17) : Found in 10-15% of follicle center cell lymphoma (FCCL) and mantle cell lymphomas (MCL). Associated with poor prognosis.	
	LSI IGH	t(14;?)	Limited prognostic significance. IGH translocations found in ~50% of all NHLs, 12-35% of diffuse large B-cell lymphomas (DLBCL), ~ 90% of follicular lymphoma cases, 50-70% cases of MCL, and 20-60% of marginal zone lymphoma (MZL) cases. Used as diagnostic depending on translocation partner.	

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ALL	LSI ETV6 (TEL)/AML1 (RUNX1)	t(12;21)	Associated with favorable prognosis. Childhood ALL: Found in 25% B-cell childhood ALL cases. Associated with favorable prognosis. Adult ALL: Found in ~5% adult ALL.	**8755**
ALL	TCF3/PBX1	t(1;19)(q23;p13)	This test detects t(1;19)(q23;p13) translocation in ALL. The chromosome anomaly is associated with adverse prognostic features.	**8080**
ALL/AML	LSI MLL	t(11;?), del(11)	ALL: Associated with poor prognosis. MLL rearrangements are found in ~22% of all ALL cases and in 70-90% of infants ALL. AML: Associated with poor prognosis. MLL rearrangements are found in 10% of all AML cases and in 50% of infants with AML.	**8745**
AML	LSI CBFB	t(16;16), inv(16)	Associated with favorable prognosis. Found in 5-8% AML cases.	**8740**
AML	LSI AML1 (RUNX1)/ETO	t(8;21)	Associated with favorable prognosis. Found in 7-12% AML cases. Reported at higher frequency in children than adults.	**8725**
AML	LSI PML/ RARα	t(15;17)	Associated with favorable prognosis. Found in 5-8% AML cases. Found in ~100% of all acute promyelocytic cases.	**8735**
Bone Marrow Transplantation	X/Y	DXZ1/DYZ3	This test determines the level of donor bone marrow engraftment for sex mismatched bone marrow transplantation.	**8065**
Brain Cancer	1p/19q	1p36-19q13 co-deletion	Combined 1p36-19q13 deletions are highly associated with classic oligodendroglioma histology and a longer survival rate	**8055**
Breast Cancer	CEP ERBB2 (HER2/neu)	17q12 amplification	Associated with poor prognosis. Found in ~30% of all breast cancer cases. HER2/neu overexpression predicts sensitivity to trastuzumab treatment	**8025**
Burkitt's lymphoma	LSI MYC	t(8;?)	Found in 75-90% cases of Burkitt's lymphoma.	**8760**
CML/ALL/AML	LSI BCR/ABL	t(9;22)	CML: Limited prognostic significance. Found in ~95% of CML cases. Favorable prognosis compared to BCR/ABL negative CML. ALL: Associated with poor prognosis. Found in ~25% to 44% adult ALL cases. AML: Found in less than 1% of AML cases. Associated with poor prognosis.	**8750**
Follicular Lymphoma	LSI IGH/BCL2	t(14;18)	Limited prognostic significance. Found ~90% and ~30% of all follicular lymphomas and DLBCL cases.	**8765**
Hypereosinophilic Syndrome	CHIC2	Del (4q12)	Uncertain at this time.	**8730**
Lung Cancer, Colorectal Cancer, triple-negative Breast Cancer	EGFR	7p12 amplification	The presence of EGFR amplification is associated with a poor prognosis but may predict response to various EGFR-targeted therapies.	**8035**

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Lung Cancer (NSCLC)	LSI ALK	t(2;?)	Associated with favorable prognosis compared to NSCLC without a rearrangement. ALK rearrangements are found in 3-5% NSCLC. FDA-approved companion diagnostic for ALK inhibitor, Xalkori.	**8030**
Lung Cancer (NSCLC)	LSI MET	7q31 implication	Found in 2-4% of previously untreated NSCLC cases. Found in 5-20% of cases with EGFR-mutated tumors and is correlated with aquired reisitance to EGFR TKIs.	**8095**
Lung Cancer (NSCLC)	LSI ROS1	t(6;?)	Found in 1-2% of NSCLC cases. May respond to crizotinib treatment.	**8781**
Mantle Cell Lymphoma (MCL)	LSI IGH/ CCND1	t(11;14)	Limited prognostic significance. Diagnostic for MCL. Found in 50-70% of cases.	**8770**
MDS	CEP 8	Trisomy 8	Intermediate prognosis as sole abnormality. Found in 10-20% of all MDS and AML cases. About 90% of cases with trisomy 8 as the only chromosome aberration have AML or MDS.	**8385**
MDS	LSI EGR1/5p15.2	Mono 5, del (5)	Associated with favorable prognosis as only cytogenetic abnormality in MDS. Poor prognosis with associated with therapy and de novo-related MDS/AML (10-25% of cases). Most common cytogenetic abnormality in MDS and AML (found in 20-30% MDS cases).	**8710**
MDS	LSI D20S108	Del (20q12)	Associated with favorable prognosis. Found in 4-5% MDS cases as sole abnormality.	**8720**
MDS	LSI D75486/ CEP 7	Mono 7, del (7)	Associated with poor prognosis. Found in ~30% and ~20% cases of RAEB and CMML, respectively. Associated with treatment resistance.	**8715**
Synovial Sarcoma	SS18	t(X;18)(p11.2;q11.2)	Identification of t(X;18)(p11.2;q11.2) or its variant in synovial sarcoma. A t(X;18)(p11.2;q11.2) translocation or its variant is found in almost all synovial sarcomas at all the histologic types.	**8075**