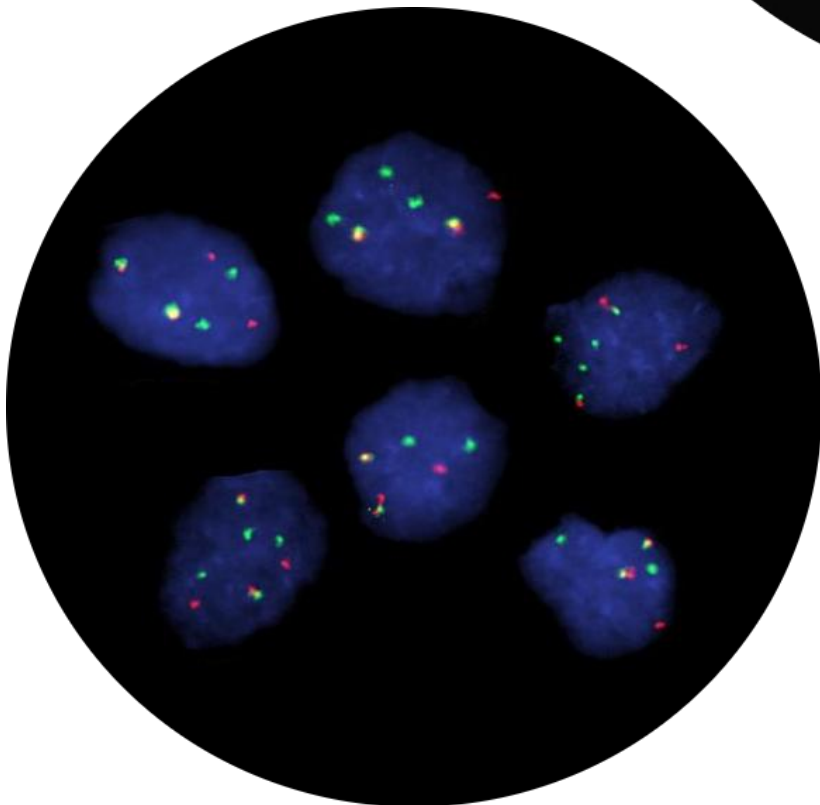
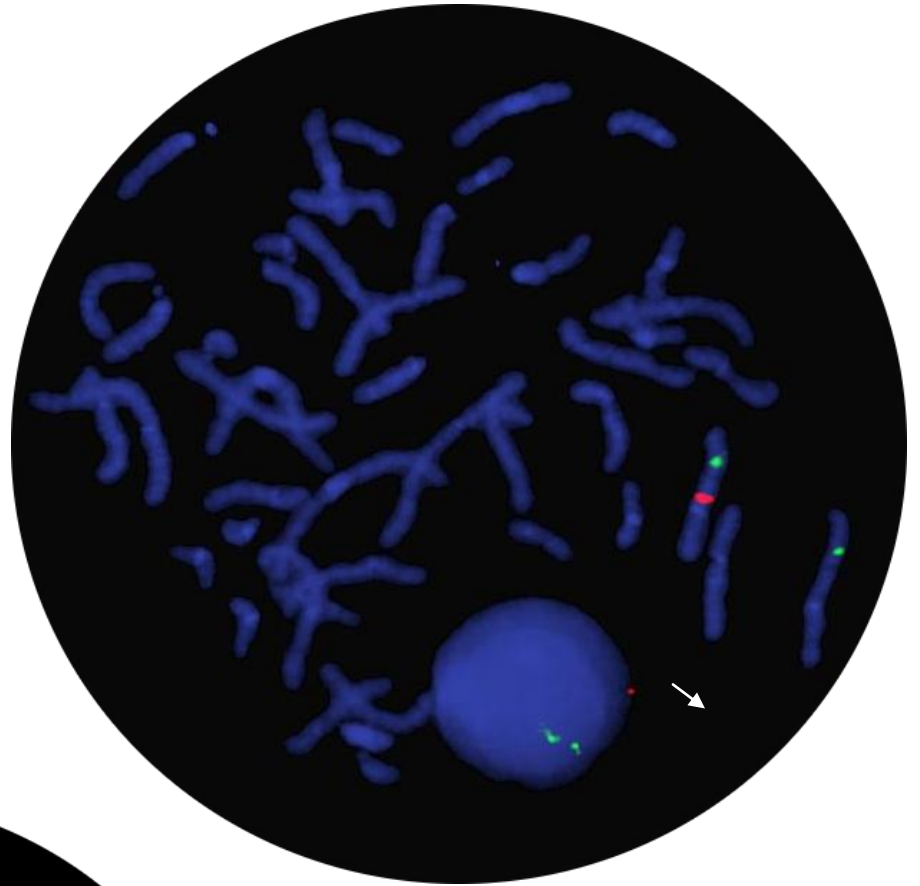




**UMassMemorial
Medical Center**

A Member of UMass Memorial Health Care

Cytogenetics Laboratory



***FISH PROBE
CATALOG***

CONSTITUTIONAL/PRENATAL FISH TESTING

Probes listed in the Microdeletion section represent the most common constitutional microdeletion syndromes that may not be picked up via chromosome analysis. AneuVysion and Other probes are used to obtain a rapid result detecting monosomies/trisomies. CEP probes are used for enumeration purposes. Microarray probes are utilized for confirmation of abnormal microarray results.

MICRODELETION PROBES:

CLINICAL USE	PROBE	PROBE REGION
p58 (1p36)	p58	1p36
Wolf-Hirschhorn	WHS	4p16.3
Williams	ELN, LIMKI, D7S613	7q11.23
Angelman Syndrome	D15S10	15q12
GABRB3	GABRB3	15q12
Prader-Willi Syndrome	SNRPN	15q12
Smith-Magenis	SMS SHMT1, TOP3, FLII, LLGL1	17p11.2
Miller-Dieker/Lissencephaly	LIS1	17p13.3
DiGeorge/VCF	HIRA	22q11.2
Kallmann	Kallman	Xp22.3
Steroid Sulphatase	STS	Xp22.3
SHOX	SHOX	Xp22
SRY	SRY	Yp11.3

ANEUVYSION PROBE SET:

CLINICAL USE	PROBE	PROBE REGION
X,Y,18	DXZ1,DYZ3,D18Z1	Xp11.1-q11.1/ Yp11.1-q11.1/ 18p11.1-q11.1
13,21	RB1/21	13q14/ 21q22.1-q22.2

OTHER PROBES:

CLINICAL USE	PROBE	PROBE REGION
LSI 21	D21S529,D21S341,D21S342	21q22.13-q22.2
LSI RB1	RB1	13q14

CENTROMERE PROBES:

Chromosome 2	Chromosome 12
Chromosome 3	Chromosome 16
Chromosome 4	Chromosome 17
Chromosome 7	Chromosome 18
Chromosome 8	Chromosome 20
Chromosome 9	Chromosome X
Chromosome 10	Chromosome Y

MICROARRAY PROBES:

Sequence specific probes ordered to confirm abnormal microarray results.

HEMATOLOGIC FISH TESTING

Probes are listed by cancer type. As the list of available probes changes with time, please contact UMass Memorial Medical Center's Cytogenetics Laboratory (774-442-9000) to discuss probe availability if a desired probe is not seen on the provided list. In the following list BAP stands for Break Apart Probe.

ACUTE LEUKEMIAS

	PROBE	PROBE REGION
Acute Myelogenous Leukemia (AML)	EVI1 - Tricolor BAP	3q26
	FIP1L1/ PDGFRA/ LNX - BAP	4q12
	EGR1	-5 or 5q31
	PDGFRb - BAP	5q33.2
	D7S486/CEP 7	-7 or 7q31
	CEP 8	+8
	ETO(RUNXT1)/AML1(RUNX1)	t(8;21)
	MLL - BAP	11q23
	PML/RARA	t(15;17)
	RARA - BAP	17q21.1
	p53	17p13.1
	CBFB - BAP	16q22
	D20S108	20q12
	Acute Lymphocytic Leukemia (ALL)	PBX1/TCF3
SIL-TAL1 - BAP		1p32
CEP 4		+4 (Pediatric)
CDKN2 (p16)		9p21
BCR/ABL		t(9;22)
CEP 10		+10 (Pediatric)
MLL - BAP		11q23
ETV6 (TEL)/RUNX1 (AML1)		t(12;21) (Pediatric)
ETV6 (TEL) - BAP		12p13
TCR alpha/delta - BAP		14q11(T-cell)
CEP 17		+17 (Pediatric)
p53		17p13.1
Chronic Myelogenous Leukemia (CML)/ Myeloproliferative Disorder (MPD)	CEP 8	+8
	BCR/ABL	t(9;22)
	CEP 9	+9
	p53	17p13.1
Myelodysplastic Syndrome (MDS)	EGR1	-5 or 5q31
	D7S486/CEP 7	-7 or 7q31
	CEP 8	+8
	D20S108	20q12

LYMPHOPROLIFERATIVE DISORDERS

	PROBE	PROBE REGION
Chronic Lymphocytic Leukemia (CLL) Panel:	ATM/p53 D13S319/ LAMP1/ CEP 12	11q22.3/17p13.1 +12, -13/13q-
Individual:	c-MYB ATM CEP 12 D13S319 IGH - BAP p53	6q23 11q22.3 +12 13q14.3 14q32 17p13.1
Mantle Cell Lymphoma (MCL)	CCND1/IGH CCND1 - BAP	t(11;14) 11q13
Follicular Lymphoma (FL)	BCL2/IGH	t(14;18)
Burkitt's Lymphoma (BL)	c-MYC/ IGH/ CEP 8 c-MYC - BAP IG kappa - BAP IGH - BAP IG lambda - BAP c-MYC	t(8;14) 8q24 2p11 14q32 22q11 8q24
MALT Lymphoma	MALT1/IGH AP12/MALT1 MALT1	t(14;18) t(11;18) 18q21
Anaplastic Large Cell Lymphoma (AnLCL)	ALK - BAP	2p23
Non-Hodgkin's Lymphoma	BCL10 - BAP BCL6 - BAP c-MYB TCR beta - BAP TCR gamma - BAP TCR alpha/delta - BAP IGH - BAP CEP 12 p53	1p22 3q27 6q23 7q34 (T-cell) 7p14 (T-cell) 14q11 (T-cell) 14q32 +12 17p13.1

PLASMA CELL DYSPLASIA (PCD)

	PROBE	PROBE REGION
Panel:	D5S23,D5S721, D9Z1, D15Z4 D13S319 IGH - BAP p53 CCND1/IGH	+5,+9,+15 13q14 14q32 17p13.1 t(11;14)
If necessary:	FGFR3/IGH MAF/IGH	t(4;14) t(14;16)

SOLID TUMORS

	PROBE	PROBE REGION
Ewing's Sarcoma	EWSR1 - BAP	22q12
Glioma	1p36/1q25 deletion 19p/19q deletion	1p36/1q25 19p13/19q13
Lipoma	CHOP-DDIT3 - BAP	12q13
Liposarcoma	MDM2 MDM2/CEP 12 FUS1 - BAP	12q15 12q15/CEP 12 16p11.3
Neuroblastoma	N-MYC N-MYC/CEP 2	2p24.1 2p24/CEP 2
Retinoblastoma	RB1	13q14
Rhabdomyosarcoma	FOXO1(FKHR) - BAP	13q14
Synovial Sarcoma	HUGO (SYT) - BAP TFE3 - BAP	18q11.2 Xp11

NUMERIC FISH PROBES

CENTROMERE PROBES:

Chromosome 2
Chromosome 3
Chromosome 4
Chromosome 7
Chromosome 8
Chromosome 9
Chromosome 10

CENTROMERE PROBES:

Chromosome 12
Chromosome 16
Chromosome 17
Chromosome 18
Chromosome 20
Chromosome X
Chromosome Y

LIST of HEMATOLOGIC FISH PROBES

Alphabetical hematological probe list along with typical use for the probe. In the following list BAP stands for Break Apart Probe.

PROBE	PROBE REGION	Clinical Use
ALK - BAP	2p23	NHL
AP12/MALT1	t(11;18)	MALT
ATM	11q22.3	CLL
ATM/p53	11q22.3/17p13.1	CLL
BCL10 - BAP	1p22	NHL
BCL2/IGH	t(14;18)	FL
BCL6 - BAP	3q27	NHL
BCR/ABL	t(9;22)	CML, ALL
CBFB - BAP	16q22	AML-M4Eo
CCND1 - BAP	11q13	MCL, PCD
CCND1/IGH	t(11;14)	MCL, PCD
CDKN2 (p16)	9p21	ALL
c-MYB	6q23	CLL, NHL
c-MYC	8q24	BL
c-MYC - BAP	8q24	BL
c-MYC/ IGH/ Centromere 8	t(8;14)	BL
D13S319	13q14	CLL, PCD
D13S319/ LAMP1/ Centromere 12	+12, -13/13q-	CLL
D20S108	20q12	MDS, AML
D5S23,D5S721, D9Z1, D15Z4	+5,+9,+15	PCD
D7S486/CEP 7	-7 or 7q31	MDS, AML
EGR1	-5 or 5q31	MDS, AML
ETO(RUNXT1)/AML1(RUNX1)	t(8;21)	AML-M2
ETV6 (TEL) - BAP	12p13	ALL (Pediatric)
ETV6 (TEL)/RUNX1 (AML1)	t(12;21)	ALL (Pediatric)
EVI1 - Tricolor BAP	3q26	AML
FGFR3/IGH	t(4;14)	PCD
FIP1L1/ PDGFRA/ LNX - BAP	4q12	AML
IG lambda - BAP	22q11	BL
IG kappa - BAP	2p11	BL
IGH - BAP	14q32	CLL, NHL, PCD
MAF/IGH	t(14;16)	PCD
MALT1	18q21	MALT
MALT1/IGH	t(14;18)	MALT
MLL - BAP	11q23	AML, ALL
p53	17p13.1	AML, ALL, CML, CLL, NHL, PCD
PBX1/TCF3	t(1;19)	ALL (Pediatric)
PDGFRb - BAP	5q33.2	AML
PML/RARA	t(15;17)	AML-M3/APL/APML
RARA - BAP	17q21.1	AML-M3/APL/APML
SIL-TAL1 - BAP	1p32	ALL
TCR alpha/delta - BAP	14q11	NHL (T-cell)
TCR beta - BAP	7q34	NHL (T-cell)
TCR gamma - BAP	7p14	NHL (T-cell)

SPECIMEN REQUIREMENTS

Amniotic Fluid	15 mL (18 mL if FISH requested)
Bone Marrow Aspirate	1 - 2 mL in Sodium Heparin (Green Top) tube
Cerebral Spinal Fluid	at least 2 mL in sterile centrifuge tube
Fine Needle Aspirate	at least 2 mL in sterile centrifuge tube in transport media or saline
Fixed Paraffin Block	3-4 (50um) thick sections
Leukemic Blood	3 - 5 mL in Sodium Heparin (Green Top) tube
Lymph Node	(0.5cm x 0.5cm x 0.5 cm) non-necrotic biopsy
Peripheral Blood	3 - 5 mL in Sodium Heparin (Green Top) tube
Products of Conception/Fetal Tissue	20-30 mg chorionic villi/ (0.75cm x 0.5cm x 0.25cm) fetal tissue in transport media or saline
Slides	Paraffin-Embedded Thin Sections, Smears, Touch Preps
Solid Tumor	(1cm x 1cm x 1cm) non-necrotic tumor
Tissue Biopsy	(0.25cm x 0.25cm x 0.25cm) piece in transport media or saline

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