Genetics Associates, Inc.

TEST MENU

CANCER/LEUKEMIA

CHROMOSOME ANALYSIS

TEST	CPT CODES	TAT
Chromosome Analysis – Bone Marrow	88237 x 2, 88264, 88280 x 2, 88291	4 Days
Chromosome Analysis – Bone Marrow Core	88237 x 2, 88264, 88280 x 2, 88291	4 Days
Chromosome Analysis – Leukemic Blood	88237 x 2, 88264, 88280 x 2, 88291	4 Days
Chromosome Analysis – Lymph Node	88233 x 2, 88264, 88280 x 2, 88291	4 Days
Chromosome Analysis – Mass/Solid Tumor	88233 x 2, 88264, 88280 x 2, 88291	14 Days
Chromosome Analysis – Peritoneal Fluid	88237 x 2, 88264, 88280 x 2, 88291	4 Days
Chromosome Analysis – Pleural Fluid	88237 x 2, 88264, 88280 x 2, 88291	4 Days
Chromosome Analysis – Fixed Pellet	88264, 88280 x 2, 88291	4 Days
Chromosome Analysis – Fine Needle Aspirate	88237 x 1, 88264, 88280 x 2, 88291	4 Days

FLUORESCENCE IN SITU HYBRIDIZATION (FISH)

TEST	CPT CODES	TAT
FISH - Single (Whole Specimen or Pellet)	88271 (per probe), 88275 (per probe), 88291	4 Days
FISH – Single (Paraffin Embedded Tissue Slides)	88271 (per probe), 88275 (per probe), 88291	7 Days
FISH – Multi - (Whole Specimen or Pellet)	88271 x 2 (per probe), 88275 (per probe), 88291	4 Days
FISH – Multi - (Paraffin Embedded Tissue Slides)	88271 (per probe), 88275 (per probe), 88291	7 Days
FISHnet / iFISH (enrichment only)	88112 (FISH codes will also apply—see above)	4 Days

(See below for list of FISH probes by profile and in numerical order.)

(FISH may be performed on the following specimen types: Bone Marrow, Bone Marrow Core, Fixed Pellets, Leukemic Blood, Lymph Node, Mass/Solid Tumor, Paraffin Embedded Tissue Slides, Pleural Fluid, Peritoneal Fluid, and Urine.)

CANCER/LEUKEMIA

FISH PROBES BY PROFILE

Adult B-Cell ALL profile

del(9p) CDKN2A

del(6q) MYB

t(9;22) BCR/ABL1/ASS1

11q23 KMT2A (MLL) rearrangements

t(1;19) TCF3/PBX1

14q32 IGH rearrangements

Adult T-Cell ALL profile

14q11.2 TRA rearrangements

7q34 TRB rearrangements

10q24 TKX1

5q35 TLX3

11q23 KMT2A (MLL) rearrangements

del(9p) CDKN2A

Pediatric ALL profile (COG)

t(12;21) ETV6/RUNX1

11q23 KMT2A (MLL) rearrangements

t(9;22) BCR/ABL1/ASS1

trisomy 4,10,17

14q32 IGH rearrangement

Additional probes

t(1;19) TCF3/PBX1

Ph-Like ALL profile

1q25.2 ABL2

5q32 PDGFRB

5q32 CSF1R

9p24.1 JAK2

9q34.1 ABL1

19p13.2 EPOR

Xp22.33/Yp11.3 CRFL2

Acute Myelogenous (AML) profile

t(15;17) PML/RARA

t(9;22) BCR/ABL1/ASS1

t(8;21) RUNX1T1/RUNX1

11q23 KMT2A (MLL) rearrangements

inv(16), t(16;16) CBFB rearrangements

inv(3) MECOM rearrangements

17q RARA rearrangements

NUP98 11p15

CLL Lymphocytic (CLL) profile

(CD19+ Clones Available)

del(11q) ATM

trisomy 12

del(13q) 13q14/13q34

del(17p) TP53

Additional Probes

t(11;14) CCND1/IGH

del(6q) MYB

CANCER/LEUKEMIA

Chronic Myelogenous (CML) profile

t(9;22) BCR/ABL1/ASS1

Additional probes

trisomy 8

i(17q)

Lymphoma probes

(CD19+ Clones Available)

t(8;14) MYC/IGH (Burkitt or Follicular)

8q24 MYC rearrangements

t(11;14) CCND1/IGH (Mantle Cell)

t(11;18) BIRC3/MALT1

18q21 BCL2 rearrangements

18q21 MALT1 rearrangements

t(14;18) IGH/BCL2 (Follicular or Diffuse Large B-Cell)

3q27 BCL6 rearrangements (Diffuse Large B-Cell, Follicular Marginal Zone B-cell)

T-cell Leukemia/Lymphoma probes

2p23 ALK (Anaplastic) rearrangements

14q11.2 TRA rearrangements

7q34 TRB rearrangements

i(7q) 7cen/7q22/7q31

14q32 TCL1A

10q24 TLX1

5q35 TLX3

Multiple Myeloma CD138 Enriched (MM) profile (FISHnet™)

1p32.3/1q21 CDKN2C/CKS1B

del(13q) 13q14/13q34

del(17p) TP53

t(11;14) CCND1/IGH

t(4;14) FGFR3/IGH

t(14;16) IGH/MAF

Additional probes

trisomy 5

8q24 MYC rearrangements

t(6;14) CCND3/IGH

t(14;20) IGH/MAFB

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Myelodysplastic (MDS) profile

del(5q) EGR1

del(7q) / monosomy 7

trisomy 8

del(20q)

Additional probes

11q23 KMT2A (MLL) rearrangements

t(9;22) BCR/ABL1/ASS1

NUP98 11p15

12p13 ETV6 rearrangements

Myeloproliferative (MPN) profile

del(5q) EGR1

del(7q) / monosomy 7

trisomy 8

del(20q)

t(9;22) BCR/ABL1/ASS1

Additional probes

4q12 FIP1L1/CHIC2/PDGFRA

5q32 PDGFRB rearrangements

8p11 FGFR1 rearrangements

9q24 JAK2 rearrangements

Solid Tumor probes

EWSR1 Ewing Sarcoma

FOXO1 Alveolar Rhabdomyosarcoma

DDIT3 (CHOP) Myxoid Liposarcoma

LOH 1p/19q Glioma

MYCN 2p24.1 Neuroblastoma

SS18 Synovial Sarcoma

Transplant

XX/XY for sex mismatched transplants

Bladder Cancer Screening
(Trisomy 3, 7, 17, & 9p21 loss)

CANCER/LEUKEMIA

FISH PROBES NUMERICALLY

Chromosome #	Probe	Location on Cancer Requisition
1	1p32.3/1q21 CDKN2C/CKS1B	Multiple Myeloma Profile
1	1q25.2 ABL2	Ph Like ALL profile
1, 19	t(1;19) TCF3/PBX1	Adult B-Cell ALL profile
		Pediatric ALL profile
1, 19	1p/19q LOH (Glioma)	Solid Tumor probes
2	2p23 ALK (Anaplastic) rearrangements	T-cell Leukemia/Lymphoma probes
2	2p24.1 MYCN (Neuroblastoma)	Solid Tumor probes
3	inv(3) MECOM rearrangements	Acute Myelogenous (AML) profile
3	3q27 BCL6 rearrangements (Diffuse Large B-Cell, Follicular, Marginal Zone B-cell)	Lymphoma probes
4, 10, 17	trisomy 4,10,17	Pediatric ALL profile
4	4q12 FIP1L1/CHIC2/PDGFRA	Myeloproliferative (MPN) profile
4, 14	t(4;14) FGFR3/IGH	Multiple Myeloma Profile
5	del(5q) EGR1 / trisomy 5	Multiple Myeloma Profile
		Myeloproliferative (MPN) profile
		Myelodysplastic (MDS) profile
5	5q33 PDGFRB rearrangements	Multiple Myeloma Profile
		Ph Like ALL Profile
5	5q32 CSF1R	Ph Like ALL Profile
5	5q35 TLX3	Adult T-Cell ALL profile

CANCER/LEUKEMIA

Chromosome #	Probe	Location on Cancer Requisition
6	del(6q) MYB	Adult B-Cell ALL profile
		Chronic Lymphocytic (CLL) profile
6, 14	t(6;14) CCND3/IGH	Multiple Myeloma Profile
7	del(7q) / monosomy 7 / trisomy 7	Multiple Myeloma Profile
		Myelodysplastic (MDS) profile
		Myeloproliferative (MPN) profile
7	i(7q) 7cen/7q22/7q31	T-cell Leukemia/Lymphoma probes
7	7q34 TRB rearrangements	Adult T-Cell ALL profile
		T-cell Leukemia/Lymphoma probes
8	trisomy 8 (CHARGE)	Chronic Myelogenous (CML) profile
		Myelodysplastic (MDS) profile
		Myeloproliferative (MPN) profile
8	8p11 FGFR1 rearrangements	Myeloproliferative (MPN) profile
8	8q24 MYC rearrangements	Lymphoma probes
8,14	t(8;14) MYC/IGH (Burkitt or Follicular)	Lymphoma probes
8, 21	t(8;21) RUNX1T1/RUNX1	Acute Myelogenous (AML) profile
9	9p24 JAK2 rearrangements	Myeloproliferative (MPN) profile
9	del(9p) CDKN2A	Adult B-Cell ALL profile
		Adult T-Cell ALL profile
9	9q34.1 ABL1	Ph Like ALL Profile

CANCER/LEUKEMIA

Chromosome #	Probe	Location on Cancer Requisition
9, 22	t(9;22) BCR/ABL1/ASS1	Adult B-Cell ALL profile
		Pediatric ALL profile
		Acute Myelogenous (AML) profile
		Chronic Myelogenous (CML) profile
		Myelodysplastic (MDS) profile
		Myeloproliferative (MPN) profile
10	10q24 TLX1	Adult T-Cell ALL profile
		T-cell Leukemia/Lymphoma probes
11	NUP98 11p15	Acute Myelogenous (AML) profile
		Myelodysplastic (MDS) profile
11	del(11q) ATM	Chronic Lymphocytic (CLL) profile
11	11q23 KMT2A (MLL) rearrangements	Myelodysplastic (MDS) profile
		Adult B-Cell ALL profile
		Adult T-Cell ALL profile
		Pediatric ALL profile
		Acute Myelogenous (AML) profile
11, 14	t(11;14) CCND1/IGH	Chronic Lymphocytic (CLL) profile
	t(11;14) CCND1/IGH (Mantle Cell)	Lymphoma probes
	t(11;14) CCND1/IGH	Multiple Myeloma Profile
11, 18	t(11;18) BIRC3/MALT1	Lymphoma probes
12	trisomy 12	Chronic Lymphocytic (CLL) profile
12	12p13 ETV6 rearrangements	Myelodysplastic (MDS) profile
12	12q13 DDIT3 (CHOP) Myxoid Liposarcoma	Solid Tumor probes

CANCER/LEUKEMIA

Chromosome #	Probe	Location on Cancer Requisition
12, 21	t(12;21) ETV6/RUNX1	Pediatric ALL profile
13	del(13q) 13q14/13q34	Chronic Lymphocytic (CLL) profile
		Multiple Myeloma Profile
13	13q14.1 FOXO1 Alveolar Rhabdomyosarcoma	Solid Tumor probes
14	14q11.2 TRA rearrangements	Adult T-Cell ALL profile
		T-cell Leukemia/Lymphoma probes
14	14q32 IGH rearrangements	Adult B-Cell ALL profile
		Pediatric ALL profile
14	14q32 TCL1A	T-cell Leukemia/Lymphoma probes
14, 16	t(14;16) IGH/MAF	Multiple Myeloma Profile
14, 18	t(14;18) IGH/BCL2 (Follicular or Diffuse Large B-Cell)	Lymphoma probes
14, 20	t(14;20) IGH/MAFB	Multiple Myeloma Profile
15, 17	t(15;17) PML/RARA	Acute Myelogenous (AML) profile
16	inv(16), t(16;16) CBFB rearrangements	Acute Myelogenous (AML) profile
17	del(17p) TP53	Chronic Lymphocytic (CLL) profile
	del(17p) TP53	Multiple Myeloma Profile
17	i(17q)	Chronic Myelogenous (CML) profile
17	17q RARA rearrangements	Acute Myelogenous (AML) profile
18	18q11.2 SS18 Synovial Sarcoma	Solid Tumor probes
18	18q21 BCL2 rearrangements	Lymphoma probes
18	18q21 MALT1 rearrangements	Lymphoma probes
19	19p13.2 EPOR	Ph Like Profile

CANCER/LEUKEMIA

Chromosome #	Probe	Location on Cancer Requisition
20	del(20q)	Myelodysplastic (MDS) profile
		Myeloproliferative (MPN) profile
22	22q12.2 EWSR1 Ewing Sarcoma	Myeloproliferative (MPN) profile
3, 7, 9, 17	Bladder Cancer Screening	Solid Tumor probes
X/Y	CEPXY (XX/XY for sex mismatched transplant)	Transplant
X/Y	Xp22.33/Yp11.3 CRFL2	Ph Like ALL Profile

CHROMOSOME MICROARRAY

TEST	CPT CODES	TAT
Microarray (SNP)	81229	10 Days

NEXT GENERATION SEQUENCING (NGS)

TEST	CPT CODES	TAT
NGS	81450	14 Days

(See below for list of NGS panels.)

Panel	Included Genes
AML Molecular Profile	ASXL1, CBL, CEBPA, CSF3R, DNMT3A, EZH2, IDH1, IDH2, JAK2, KIT, KRAS, MPL, NPM1, NRAS, RUNX1, SETBP1, SF3B1, SRSF2, TET2, TP53, U2AF1
MDS Molecular Profile	ASXL1, CBL, DNMT3A, EZH2, IDH1, IDH2, JAK2, KIT, KRAS, MPL, NPM1, NRAS, RUNX1, SETBP1, SF3B1, SRSF2, TET2, TP53, U2AF1
MPN Molecular Profile	ABL1, ASXL1, CALR, CBL, CSF3R, EZH2, IDH1, IDH2, JAK2, MPL, SETBP1, SF3B1, SRSF2, TET2, TP53, U2AF1
Myeloid Complete Molecular Profile	ABL1, ASXL1, BRAF, CALR, CBL, CEBPA, CSF3R, DNMT3A, EZH2, IDH1, IDH2, JAK2, KIT, KRAS, MPL, NPM1, NRAS, RUNX1, SETBP1, SF3B1, SRSF2, TET2, TP53, U2AF1

CANCER/LEUKEMIA

POLYMERASE CHAIN REACTION (PCR)

TEST	CPT CODES	TAT
BCR/ABL p210 BKPT	81206	4 Days
BCR/ABL p190 BKPT	81207	4 Days
JAK2	81270	4 Days

ADDITIONAL SENDOUT TESTING

TEST	CPT CODES	TAT
FLT3 Mutation Detection	81245, 81246	2-3 Days
IgVH Hypermutation Analysis	81263	10 Days
T-Cell Clonality Assessment	81340, 81342	7-10 Days
B-Cell Clonality Assessment	81264, 81261	7-10 Days

CONSTITUTIONAL / PRENATAL

CHROMOSOME ANALYSIS

TEST	CPT CODES	TAT
Chromosome Analysis – Amniotic Fluid	88235 X 2, 88267, 88261, 88280, 88291	7 Days
Chromosome Analysis – CVS	88235 X 2, 88267, 88261, 88280, 88172, 88291	7 Days
Chromosome Analysis – Fixed Pellet	88262, 88280 x 2, 88291	5 Days
Chromosome Analysis – Newborn Peripheral Blood	88230 x 2, 88262, 88280, 88291	5 Days
– Prelim		48 hours
Chromosome Analysis – Peripheral Blood	88230 x 2, 88262, 88280, 88291	5 Days
Chromosome Analysis – POC	88305, 88233x2, 88261, 88267, 88280	10 Days
Chromosome Analysis – Tissue	88233 x 2, 88264, 88280 x 3, 88291	14 Days

CHROMOSOME MICROARRAY

TEST	CPT CODES	TAT
Microarray (SNP)	81229	10 Days

FLUORESCENCE IN SITU HYBRIDIZATION (FISH)

TEST	CPT CODES	TAT
FISH (Microdeletion)	88271, 88273, 88291	5 Days
Aneupolidy Screening – Amniotic Fluid	88271 x 5, 88275, 88291	24 hours
Aneupolidy Screening – Paraffin Embedded Slides	88271 x 5, 88275, 88291	7 Days
POC FISH – Product of Conception Tissue	88271 x 8, 88275 X 2, 88291	3 Days
POC FISH – Paraffin Embedded Slides	88271 x 8, 88275 X 2, 88291	7 Days

(See below for list of FISH probes by profile and in numerical order.)

(FISH may be performed on the following specimen types: Amniotic Fluid, Chorionic Villi, Cord Blood, Paraffin Embedded Tissue Slides, Peripheral Blood, Peritoneal Fluid, Pleural Fluid, and Products of Conception.)

CONSTITUTIONAL / PRENATAL

FISH PROBES BY PROFILE

Microdeletion Syndromes

Angelman (15q12)

Cri-du-Chat (5p15.3)

DiGeorge (22q11.2)

DiGeorge II (10p14)

Kallmann (Xp22.3)

1p36 microdeletion

Miller-Dieker (17p13.3)

Pallister-Killian/Tetrasomy 12p

Phelan-McDermid (22q13)

Prader-Willi (15q12)

Saethre-Chotzen (7p21.1)

Smith-Magenis (17p11.2)

Sotos (5q35.3)

Steroid Sulfatase Deficiency (Xp22.3)

Williams (7q11.23)

Wolf-Hirschhorn (4p16.3)

Other

Trisomy 13 – Patau Syndrome

Trisomy 18 – Edwards Syndrome

Trisomy 21 – Down Syndrome

Panels

Aneuploidy Screen (X, Y, 13, 18, 21)

POC FISH (X, Y, 13, 15, 16, 18, 21, 22)

Sex Chromosome Abnormalities

CEPX/SRY (Genotypic Sex Determination)

CEPX/CEPY (Turner Syndrome/Mosaicism)

CONSTITUTIONAL / PRENATAL

FISH PROBES NUMERICALLY by CHROMOSOME

Chromosome #	Probe
1	1p36 microdeletion
4	Wolf-Hirschhorn (4p16.3)
5	Cri-du-Chat (5p15.3)
5	Sotos (5q35.3)
7	Saethre-Chotzen (7p21.1)
7	Williams (7q11.23)
10	DiGeorge II (10p14)
12	Pallister-Killian/Tetrasomy 12p
13	Trisomy 13 – Patau Syndrome
15	Angelman (15q12)
15	Prader-Willi (15q12)
17	Miller-Dieker (17p13.3)
18	Trisomy 18 – Edwards Syndrome
21	Trisomy 21 – Down Syndrome
22	DiGeorge (22q11.2)
22	Phelan-McDermid (22q13)
X	Kallmann (Xp22.3)
X	Steroid Sulfatase Deficiency (Xp22.3)
X/SRY	X/SRY – Genotypic Sex Determination
CEPX/CEPY	CEPX/CEPY - Turner Syndrome/Mosaicism
Panels	
X,Y,13,18,21	Aneuploidy Screening
X,Y,13,15,16,18,21,22	POC FISH

CONSTITUTIONAL / PRENATAL

ADDITIONAL SENDOUT TESTING

TEST		CPT CODES	TAT
Cystic Fibrosis	Known Mutation	81221	7 Days
	Full Genes	81223	
	Common Gene Variant	81220	
Fragile X		81243, 81244	10 Days
AZF-Y Microdeletion		81381	10-12 Days
Thrombophilia Panel (Factor II, Factor V, MTHFR)		81240, 81241, 81291	7-10 Days