HENRY FORD HEALTH
CENTER FOR PRECISION DIAGNOSTICS

Rapid AML Sequencing Panel

Targeted next generation sequencing assay for detection of hot spot mutations and fusions in cancer-related genes. The Rapid AML Sequencing panel is to be used in newly diagnosed AML cases that been established by morphology or for follow-up as class defining or risk modifier according to current WHO guidelines.

Testing Method and Background

This test utilizes hybrid capture method followed by **Next Generation Sequencing (NGS) technology** for detection of mutations in 26 genes associated with Hematologic malignancies (tumor suppressor genes and oncogenic hot spots) using extracted DNA and RNA from blood or bone marrow specimens. Additionally, 112 fusion targets are screened. Data analysis provides variant detection and annotation, interpretation of clinically significant genomic alterations and their association to approved or investigational therapies. This assay is designed to detect single nucleotide variants, insertions, deletions and copy number alterations within the defined target regions. Variants outside the define regions may not be detected.

Highlights of Rapid AML Sequencing Panel

Targeted Genes

AKRD26, ASXL1, BCOR, CEBPA, DDX41, DNMT3A, ETV6, EZH2, FLT3, GATA2, HRAS, IDH1, IDH2, KIT, KRAS, NPM1, NRAS, RUNX1, SF3B1, SRSF2, STAG2, TET2, TP53, U2AF1, WT1, ZRSR2

**112 fusion targets and specific exon coverage listed on next page

- **Accurate Results from Low-Quality Samples**
  Workflow with low quantity of input DNA and accurate detection of variants down to 5% mutant allele frequency.
- **Wide-ranging Coverage of Variants**
  Assessment of single-nucleotide variants (SNVs) and small insertions/deletions within multiple target exons.

Ordering Information

Get started (non-HFHS): Print a Molecular Hematologic Testing requisition form online at www.HenryFord.com/HFCPD

Get started (HFHS): Order through Epic using test "Rapid AML Sequencing" (MOL8032 Blood, MOL8036 Bone Marrow)

Specimen requirements:

- Peripheral Blood - 1-3ml in lavender top tube (EDTA) **Specimen stability: Ambient - 72 hours; Refrigerated - 1 week**
- Bone Marrow - 1-3ml, anticoagulated with either heparin or EDTA, **Specimen stability: Refrigerated - 1 week** (ship cold)
- Extracted DNA + RNA - from a CLIA-certified Laboratory

Cause for Rejection: Clotted, hemolyzed, or frozen specimens, improper anticoagulant, tubes not labeled with dual patient identification, non-dedicated tubes.

TAT: 5-10 business days (after Prior Authorization obtained)

Mail test material to:
Henry Ford Center for Precision Diagnostics
Pathology and Laboratory Medicine
Clinic Building, K6, Core Lab, E-655
2799 W. Grand Blvd., Detroit, MI 48202

CPT Codes: 81455, G0452

Contact us: Client Services, Account and Billing Set-up, and connect with a Molecular Pathologist at (313) 916-4DNA (4362)

For more information on Comprehensive Molecular Services, visit our website
www.HenryFord.com/HFCPD

Revision: 1; 08-25-2022

Rapid AML Sequencing Panel

DNA Gene Target Regions

Gene	Target Regions	Gene	Target Regions
ANKRD26	Exons 1-4 (including full 5'-UTR)	KIT	Exons 2, 8-11, 13, 17, 18
ASXL1	Exons 9, 11, 12	KRAS	All coding exons
BCOR	All coding exons	NPM1	Exons 10 and 11
CEBPA	All coding exons	NRAS	Exons 2-5
DDX41	All coding exons	RUNX1	All coding exons
DNMT3A	All coding exons	SF3B1	Exons 10-16
ETV6	All coding exons	SRSF2	Exon 1
EZH2	All coding exons	STAG2	All coding exons
FLT3	Exons 11, 13-17, 20	TET2	All coding exons
GATA2	All coding exons	TP53	All coding exons
HRAS	Exons 2 and 3	WT1	Exons 7, 9
IDH1	All coding exons	U2AF1	Exons 2, 6
IDH2	All coding exons	ZRSR2	All coding exons

RNA Target Fusions (5'-3' gene partners)

ATF7IP-JAK2	KAT6A-CREBBP	KMT2A-SEPT6	RBM15-MKL1
BCR-ABL1	KMT2A-AFDN	KMT2A-SEPT9	RCSD1-ABL1
BCR-FGFR1	KMT2A-AFF1	KMT2A-TET1	RUNX1-RUNX1T1
BCR-JAK2	KMT2A-AFF3	MEF2D-CSF1R	SET-NUP214
BCR-PDGFRA	KMT2A-AFF4	MN1-ETV6	SFPQ-ABL1
BMP2K-ZNF384	KMT2A-ARHGAP26	MNX1-ETV6	SNX2-ABL1
CBFA2T3-GLIS2	KMT2A-ARHGEF12	MYB-GATA1	SPAG9-JAK2
CBFB-MYH11	KMT2A-ARHGEF17	NCOR1-LYN	SPTBN1-FLT3
CCDC6-PDGFRB	KMT2A-C2CD3	NDE1-PDGFRB	SPTBN1-PDGFRB
CHIC2-ETV6	KMT2A-CBL	NPM1-MLF1	SSBP2-CSF1R
CNTRL-FGFR1	KMT2A-CIP2A	NPM1-RARA	SSBP2-JAK2
CREBBP-ZNF384	KMT2A-CREBBP	NUP214-ABL1	STAT5B-RARA
CUX1-FGFR1	KMT2A-DCPS	NUP98-NSD1	STIL-TAL1
DEK-NUP214	KMT2A-ELL	NUP98-DDX10	STRN-PDGFRA
EBF1-JAK2	KMT2A-EPS15	NUP98-HOXA9	STRN3-JAK2
EBF1-PDGFRB	KMT2A-FOXO3	NUP98-KDM5A	TAF15-ZNF384
EML1-ABL1	KMT2A-KNL1	NUP98-RAPIGDS1	TCF3-HLF
EP300-ZNF384	KMT2A-MAML2	NUP98-TOP1	TCF3-PBX1
ETV6-ABL1	KMT2A-MAPRE1	OFD1-JAK2	TERF2-JAK2
ETV6-ARNT	KMT2A-MLLT1	P2RY8-CRLF2	TPM3-PDGFRB
ETV6-JAK2	KMT2A-MLLT10	PAG1-ABL2	TPR-FGFR1
ETV6-NTRK3	KMT2A-MLLT11	PAX5-ETV6	TRIM24-FGFR1
ETV6-PDGFRB	KMT2A-MLLT3	PAX5-JAK2	ZBTB16-ABL1
ETV6-RUNX1	KMT2A-MLLT6	PCM1-JAK2	ZBTB16-RARA
FGFR1OP-FGFR1	KMT2A-NRIP3	PDE4DIP-PDGFRB	ZC3HAV1-ABL2
FIP1L1-PDGFRA	KMT2A-PTD	PICALM-MLLT10	ZEB2-PDGFRB
FOXP1-ABL1	KMT2A-RARA	PML-RARA	ZMIZ1-ABL1
INPP5D-ABL1	KMT2A-SEPT5	RANBP2-ABL1	ZMYM2-FGFR1

Genes (target exons) for 5' Fusion Partners:
ATF7IP (13); BCR (1, 4, 6, 7, 12-14, 19); BMP2K (14, 15); CBFA2T3 (10, 11); CBFB (4, 5); CCDC6 (1, 7); CHIC2 (3); CNTRL (38); CREBBP (4-7); CUX1 (11); DEK (9); EBF1 (10, 13-15); EML1 (18); EP300 (6); ETV6 (4-7); FGFR1OP (5-7); FIP1L1 (12); FOXP1 (19); INPP5D (8); KAT6A (16); KMT2A (8-11); MEF2D (7); MN1 (1); MNX1 (1); MYB (8); NCOR1 (35); NDE1 (6); NPM1 (4, 6); NUP214 (23, 26, 28-32, 34); NUP98 (10-14); OFD1 (21); P2RY8 (1); PAG1 (8); PAX5 (4,5); PCM1 (26, 36); PDE4DIP (16); PICALM (17-19); PML (3, 6); RANBP2 (18); RBM15 (1); RCSD1 (2, 3); RUNX1 (3); SET (7); SFPQ (9); SNX2 (3); SPAG9 (26); SPTBN1 (4); SSBP2 (5, 6, 8, 10, 16); STAT5B (15, 16); STIL (1); STRN (6); STRN3 (8, 9); TAF15 (6, 9); TCF3 (11, 13, 15-17); TERF2 (8); TPM3 (8); TPR (22, 39); TRIM24 (9-11); ZBTB16 (3, 4); ZC3HAV1 (12); ZEB2 (9); ZMIZ1 (18); ZMYM2 (17)

Genes (target exons) for 3' Fusion Partners:
ABL1 (2-4); ABL2 (3, 5); AFDN (2); AFF1 (4-6, 11); AFF3 (7, 8, 12); AFF4 (4-6); ARHGAP26 (19); ARHGEF12 (11-13); ARHGEF17 (2-5); ARNT (3); C2CD3 (13-15, 17); CBL (10); CIP2A (17); CREBBP (2, 3); CRLF2 (1); CSF1R (12); DCPS (2); DDX10 (6, 7); ELL (2, 3, 6); EPS15 (2, 6); ETV6 (2, 3); FGFR1 (11); FLT3 (14); FOXO3 (2); GLIS2 (4, 5); GATA1 (5); HLF (4); HOXA9 (1, 2); JAK2 (9, 11, 13, 15, 17-19); KDM5A (27); KMT2A (2); KNL1 (12); LYN (8); MAML2 (2, 3); MAPRE1 (2, 4, 6); MKL1 (4, 5); MLF1 (3); MLLT1 (2, 4-7); MLLT3 (4-6, 9, 10); MLLT6 (8, 9, 12); MLLT10 (5, 7, 10, 12, 17); MLLT11 (2); MYH11 (29-35); NRIP3 (2); NSD1 (6); NTRK3 (14, 15); NUP214 (17, 18); PBX1 (3); PDGFRA (12); PDGFRB (9, 11); RAP1GDS1 (2, 3); RARA (2); RUNX1 (1, 3); RUNX1T1 (6)
SEP5 (2); SEPT6 (2); SEPT9 (2); TAL1 (3, 4, 6); TET1 (9); TOP1 (8); ZNF384 (2-4, 7)