

GenePanel Heme Assay

Effective June 1, 2021, the Genomic Medicine Laboratory at the UVM Medical Center began performing the GenePanel Heme assay, which offers targeted, capture-based, next generation sequencing of up to 151 genes, including both DNA and RNA targets that have clinical utility across a broad spectrum of hematologic neoplasms. This test replaced the *Rapid Heme Panel LAB3703*, which was performed at Brigham and Women's Hospital, and it is orderable by Hematology/Oncology and Pathology only.

New Test Name	Epic Code	Atlas Code	Mayo Access ID
GenePanel Heme	LAB15291	N/A	N/A

Specimen Requirements					
Specimen/Container	Temperature	Collect Volume	Submit Volume	Min Volume	Stability
Whole Blood or Bone Marrow/EDTA	Refrigerated	4 mL	4 mL	2 mL	5 days
Whole Blood or Bone Marrow/Sodium Heparin	Refrigerated	4 mL	4 mL	2 mL	8 days
FFPE Tissue or Cell Blocks	Ambient				
Non-cell Block Cytology Slides (Pap or MGG)	Ambient				
Instrumentation		Manual Extraction and Illumina Nextseq for Sequencing			
CPT Code(s)		GenePanel Heme, Myeloid: 81455			
		GenePanel Heme, Acute Lymphoblastic Leukemia: 81455			

Standard analytical time is 10-14 days, however this testing is also available with expedited processing for new and recurrent acute myeloid leukemias requiring reporting of critical genes by day 7 for treatment decisions. The test is validated for bone marrow aspirates, whole blood, formalin-fixed paraffin embedded tissue, and non-cell block cytology slides (Pap or MGG). Other samples may be accepted with Pathologist approval.

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Selection of a gene list is based on clinical indication and disease type. Two established panels are currently available for evaluation.

1. **Myeloid Panel:** 87 genes for use in a broad spectrum of myeloid-related diseases including acute myeloid leukemia, myelodysplastic syndrome, cytopenias, and myeloproliferative disorders.

ABL1	CREBBP	EZH2	IKZF1	MECOM	NRAS	PML	RUNX1T1	STAT5B
ASXL1	CSF1R	FGFR1	JAK1	MKL1	NUP214	PPM1D	SETBP1	TET2
BCR	CSF3R	FLT3	JAK2	MLF1	NUP98	PRDM16	SETD2	TFG
BCOR	DDX41	GATA1	JAK3	MLLT10	PDCD1LG2	PRPF8	SF3B1	TP53
CALR	DEK	GATA2	KAT6A	MLLT4	PDGFRA	PTPN11	SH2B3	U2AF1
CBFB	DNMT3A	GLIS2	KDM6A	MPL	PDGFRB	RAD21	SMC1A	WT1
CBL	EGFR	GNB1	KIT	MYH11	PDS5B	RARA	SMC3	ZRSR2
CBLB	ERG	HNRNPK	KMT2A	NF1	PHF6	RBM15	SRSF2	
CEBPA	ETNK1	IDH1	KRAS	NOTCH1	PICALM	ROS1	STAG2	
CHIC2	ETV6	IDH2	LUC7L2	NPM1	PIGA	RUNX1	STAT3	

2. **Acute Lymphoblastic Leukemia Panel:** 70 genes for use in B-lymphoblastic leukemia and T-lymphoblastic leukemia.

ABL1	CRLF2	FLT3	KDM6A	NRAS	PHF6	STIL
ABL2	CSF1R	GATA3	KLF2	NTRK3	PICALM	SUZ12
BCL11B	DNMT3A	GNB1	KMT2A	NT5C2	PTEN	TAL1
BCL2	EBF1	IDH1	KRAS	NUP214	PTK2B	TCF3
BCL6	EP300	IDH2	MLLT10	NUP98	PTPN11	TP53
BCR	EPOR	IKZF1	MLLT4	P2RY8	RUNX1	TYK2
BIRC3	ETV6	IL7R	MPL	PAX5	SETD2	WHSC1
BRAF	EZH2	JAK1	MYC	PDCD1LG2	SH2B3	WT1
CDKN2A	FBXW7	JAK2	NF1	PDGFRA	STAT3	ZCCHC7
CREBBP	FGFR1	JAK3	NOTCH1	PDGFRB	STAT5B	ZRSR2

GenePanel Heme

Full List of Genes:

<i>ABL1</i>	<i>CD79A</i>	<i>EP300</i>	<i>IKZF2</i>	<i>MLLT10</i>	<i>PDCD1LG2</i>	<i>ROS1</i>	<i>TFG</i>
<i>ABL2</i>	<i>CD79B</i>	<i>EPOR</i>	<i>IKZF3</i>	<i>MLLT4</i>	<i>PDGFRA</i>	<i>RUNX1</i>	<i>TNFAIP3</i>
<i>ALK</i>	<i>CDK6</i>	<i>ERG</i>	<i>IL7R</i>	<i>MPL</i>	<i>PDGFRB</i>	<i>RUNX1T1</i>	<i>TP53</i>
<i>ASXL1</i>	<i>CDKN2A</i>	<i>ETNK1</i>	<i>JAK1</i>	<i>MYC</i>	<i>PDS5B</i>	<i>SEMA6A</i>	<i>TP63</i>
<i>ATM</i>	<i>CEBPA</i>	<i>ETV6</i>	<i>JAK2</i>	<i>MYH11</i>	<i>PHF6</i>	<i>SETBP1</i>	<i>TYK2</i>
<i>BCL11B</i>	<i>CHD1</i>	<i>EZH2</i>	<i>JAK3</i>	<i>MYD88</i>	<i>PICALM</i>	<i>SETD2</i>	<i>U2AF1</i>
<i>BCL2</i>	<i>CHIC2</i>	<i>FBXW7</i>	<i>KAT6A</i>	<i>NOTCH1</i>	<i>PIK3CA</i>	<i>SF3B1</i>	<i>WHSC1</i>
<i>BCL6</i>	<i>CIITA</i>	<i>FGFR1</i>	<i>KDM6A</i>	<i>NOTCH2</i>	<i>PIGA</i>	<i>SH2B3</i>	<i>WT1</i>
<i>BCOR</i>	<i>CREBBP</i>	<i>FLT3</i>	<i>KIT</i>	<i>NPM1</i>	<i>PLCG2</i>	<i>SMC1A</i>	<i>XPO1</i>
<i>BCR</i>	<i>CRLF2</i>	<i>FOXO1</i>	<i>KLF2</i>	<i>NRAS</i>	<i>PML</i>	<i>SMC3</i>	<i>ZCCHC7</i>
<i>BIRC3</i>	<i>CSF1R</i>	<i>GATA1</i>	<i>KMT2A</i>	<i>NF1</i>	<i>PPM1D</i>	<i>SOCS1</i>	<i>ZRSR2</i>
<i>BRAF</i>	<i>CSF3R</i>	<i>GATA2</i>	<i>KMT2D</i>	<i>NFKB2</i>	<i>PRDM1</i>	<i>SRSF2</i>	
<i>BTK</i>	<i>CXCR4</i>	<i>GATA3</i>	<i>KRAS</i>	<i>NOTCH1</i>	<i>PRDM16</i>	<i>STAG2</i>	
<i>CALR</i>	<i>DDX41</i>	<i>GLIS2</i>	<i>LUC7L2</i>	<i>NT5C2</i>	<i>PRPF8</i>	<i>STAT3</i>	
<i>CARD11</i>	<i>DEK</i>	<i>GNA13</i>	<i>MALT1</i>	<i>NTRK3</i>	<i>PTEN</i>	<i>STAT5B</i>	
<i>CBFB</i>	<i>DNMT3A</i>	<i>GNB1</i>	<i>MAP2K1</i>	<i>NUP214</i>	<i>PTK2B</i>	<i>STIL</i>	
<i>CBL</i>	<i>DUSP22</i>	<i>HNRNPK</i>	<i>MECOM</i>	<i>NUP98</i>	<i>PTPN11</i>	<i>SUZ12</i>	
<i>CBLB</i>	<i>EBF1</i>	<i>IDH1</i>	<i>MEF2B</i>	<i>P2RY8</i>	<i>RAD21</i>	<i>TAL1</i>	
<i>CCND1</i>	<i>EGFR</i>	<i>IDH2</i>	<i>MKL1</i>	<i>PAG1</i>	<i>RARA</i>	<i>TCF3</i>	
<i>CCND3</i>	<i>EIF4A1</i>	<i>IKZF1</i>	<i>MLF1</i>	<i>PAX5</i>	<i>RBM15</i>	<i>TET2</i>	

Please contact Dr. Joanna Conant at joanna.conant@uvmhealth.org for questions.

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