

sQIAseq Multimodal Panels

Human Pan Cancer

Cat. nos. 333942 UHS-5000Z-12 and 333945 UHS-5000Z-96

For consolidated targeted next-generation sequencing of DNA and RNA

The QIAseq Multimodal Human Pan Cancer Panel permits the sequencing the whole coding region of 549 genes frequently mutated in many cancer types as well as the detection of fusions to 56 genes also frequently observed in many cancer samples, with 19,995 and 2,571 primers respectively. Such frequently detected mutations and fusions are likely to be relevant or even important to cancer biology and may be used in translational research to classify samples with known phenotypes. Using the Catalogue of Somatic Mutations in Cancer (COSMIC), frequently mutated genes and frequently detected fusions were collected for bladder cancers, brain cancers, breast cancers, cervical cancers, colorectal cancers, endometrial cancers, gastric cancers, kidney cancers, leukemias, liver cancers, lung cancers, lymphomas, myelodysplastic syndromes (MDS), myeloproliferative neoplasms (MPN), ovarian cancers, pancreatic cancers, prostate cancers, sarcomas, skin cancers including melanomas, thyroid cancers, urinary tract cancers, uterine cancers and other cancers. From the same cancer subtypes, additional fusions were also collected from the Archer Quiver Database, and more mutations and more fusions were both requested and suggested by QIAGEN KOLs and SMEs and found in other peer-reviewed publications. Using digital DNA sequencing, SNP/indels in, and fusions to, two different focused panels of genes relevant to oncology can be detected with this primer pool.

For further details, consult the *QIAseq Multimodal Panels Handbook*.

Shipping and storage

QIAseq Multimodal Panels (except QIAseq Beads, QIAseq Bead Binding Buffer, and Nuclease-free Water) are shipped on dry ice and should be stored immediately upon receipt at -30°C to -15°C in a constant-temperature freezer. QIAseq Beads, QIAseq Bead Binding Buffer, and Nuclease-free Water are shipped in a separate box on cold packs. Upon receipt, QIAseq Beads, QIAseq Bead Binding Buffer, and Nuclease-free Water should be stored at $2-8^{\circ}\text{C}$. QIAseq Multimodal Index kits are shipped on dry ice and should be stored at -30°C to -15°C upon arrival.

Note: Open the package and store the products appropriately immediately upon receipt.



Panel Contents

QIAseq Multimodal Panel Catalog Number	333942	333945
Number of samples	12	96
Multimodal DHS Panel (DNA)	120 µL	960 µL
Multimodal VHS Panel (RNA)	96 µL	768 µL
Fragmentation Buffer, 10x	40 µL	192 µL
Fragmentation Enzyme Mix	90 µL	384 µL
FERA Solution	15 µL	60 µL
Side Reaction Reducer	48 µL	192 µL
FG Solution	170 µL	170 µL
DNA Ligase	75 µL	600 µL
Ligation Solution	125 µL	970 µL
Ligation Buffer, 5x	160 µL	1250 µL
DNA Ligation Adapter	34 µL	270 µL
ATP Solution	36 µL	290 µL
PAP Enzyme	12 µL	96 µL
PAP Dilution Buffer, 10x	24 µL	192 µL
T4 Polynucleotide Kinase	12 µL	125 µL
EZ Reverse Transcriptase	15 µL	150 µL
RNase Inhibitor	12 µL	96 µL
Multimodal RT Primer	12 µL	96 µL
Multimodal RT Buffer, 5x	60 µL	480 µL
Multimodal RT Enhancer	12 µL	48 µL
TEPCR Buffer, 5x	60 µL × 2	500 µL × 2
HotStarTaq® DNA Polymerase (6 U/µL)	60 µL	480 µL
Nuclease-free Water	1 tube	10 mL
QIAseq Beads	10 mL	38.4 mL × 2
QIAseq Bead Binding Buffer	10.2 mL	10.2 mL × 2

Gene Table: DNA SNP/indel

Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol
ABL1	ABL2	ABRAXA51	ACVR1	ACVR1B	ADGRA2	AKT1	AKT2
AKT3	ALK	ALOX12B	AMER1	ANKRD11	ANKRD26	APC	AR
ARAF	ARFRP1	ARID1A	ARID1B	ARID2	ARID5B	ASXL1	ASXL2
ATM	ATR	ATRX	AURKA	AURKB	AXIN1	AXIN2	AXL
B2M	BAP1	BARD1	BAT25	BAT26	BAT34C4	BAT40	BBC3
BCL10	BCL2	BCL2L1	BCL2L11	BCL2L2	BCL6	BCOR	BCORL1
BCR	BIRC3	BLM	BMPRIA	BRAF	BRCA1	BRCA2	BRD4
BRIP1	BTG1	BTK	C11orf30	CALR	CARD11	CASP8	CBFB
CBL	CCND1	CCND2	CCND3	CCNE1	CD274	CD276	CD74
CD79A	CD79B	CDC73	CDH1	CDK12	CDK4	CDK6	CDK8
CDKN1A	CDKN1B	CDKN2A	CDKN2B	CDKN2C	CEBPA	CENPA	CHD2
CHD4	CHEK1	CHEK2	CIC	COP1	CREBBP	CRKL	CRLF2
CSF1R	CSF3R	CSNK1A1	CTCF	CTLA4	CTNNA1	CTNNB1	CUL3
CUX1	CXCR4	CYLD	D10S196	D13S175	D17S250	D17S588	D17S787
D18S35	D18S55	D18S61	D18S64	D18S69	D20S100	D2S123	D3S1029
D5S107	D5S346	D7S519	D8S87	DAXX	DCUN1D1	DDR2	DDX41
DHX15	DICER1	DIS3	DNAJB1	DNMT1	DNMT3A	DNMT3B	DOT1L
E2F3	EED	EGFL7	EGFR	EIF1AX	EIF4A2	EIF4E	EML4
EP300	EPCAM	EPHA3	EPHA5	EPHA7	EPHB1	ERBB2	ERBB3
ERBB4	ERCC1	ERCC2	ERCC3	ERCC4	ERCC5	ERG	ERRFI1
ESR1	ETSI	ETV1	ETV4	ETV5	ETV6	EWSR1	EZH2
FAM46C	FANCA	FANCC	FANCD2	FANCE	FANCF	FANCG	FANCI
FANCL	FAS	FAT1	FBXW7	FGF1	FGF10	FGF14	FGF19
FGF2	FGF23	FGF3	FGF4	FGF5	FGF6	FGF7	FGF8
FGF9	FGFR1	FGFR2	FGFR3	FGFR4	FH	FLCN	FLI1
FLT1	FLT3	FLT4	FOXA1	FOXL2	FOXO1	FOXPI	FRS2
FUBP1	FYN	GABRA6	GATA1	GATA2	GATA3	GATA4	GATA6
GEN1	GID4	GLI1	GNAI1	GNA13	GNAQ	GNAS	GPS2
GREM1	GRIN2A	GRM3	GSK3B	H3-3A	H3C2	H3C4	H3F3B
H3F3C	HGF	HIST1H1C	HIST1H2BD	HIST1H3A	HIST1H3C	HIST1H3E	HIST1H3F
HIST1H3G	HIST1H3H	HIST1H3I	HIST1H3J	HIST2H3A	HIST2H3C	HIST2H3D	HIST3H3
HLA-A	HLA-B	HLA-C	HNFI1A	HNRNP1K	HOXB13	HRA5	HSD3B1
HSP110-T17	HSP90AA1	ICOSLG	ID3	IDH1	IDH2	IFNGR1	IGF1
IGF1R	IGF2	IKBKE	IKZF1	IL10	IL7R	INHA	INHBA
INPP4A	INPP4B	INSR	IRF2	IRF4	IRS1	IRS2	JAK1
JAK2	JAK3	JUN	KAT6A	KDM5A	KDM5C	KDM6A	KDR
KEAP1	KEL	KIF5B	KIT	KLF4	KLHL6	KMT2A	KMT2B
KMT2C	KMT2D	KRAS	LAMP1	LATS1	LATS2	LMO1	LRPIB
LYN	LZTR1	MAGI2	MALT1	MAP2K1	MAP2K2	MAP2K4	MAP3K1
MAP3K13	MAP3K14	MAP3K4	MAPK1	MAPK3	MAX	MCL1	MDC1
MDM2	MDM4	MED12	MEF2B	MEN1	MET	MGA	MITF
MLH1	MLLT3	MONO-27	MPL	MRE11	MSH2	MSH3	MSH6
MST1	MST1R	MTOR	MUTYH	MYB	MYC	MYCL	MYCN
MYD88	MYOD1	NAB2	NBN	NCOA3	NCOR1	NEGR1	NFI
NF2	NFE2L2	NFKB1A	NKX2-1	NKX3-1	NOTCH1	NOTCH2	NOTCH3
NOTCH4	NPM1	NR21	NR22	NR24	NRAS	NRG1	NSD1
NTRK1	NTRK2	NTRK3	NUP93	NUTM1	PAK1	PAK3	PAK7
PALB2	PARP1	PAX3	PAX5	PAX7	PAX8	PBRM1	PDCD1
PDCD1LG2	PDGFRA	PDGFRB	PDK1	PDPK1	PGR	PHF6	PHOX2B
PIK3C2B	PIK3C2G	PIK3C3	PIK3CA	PIK3CB	PIK3CD	PIK3CG	PIK3R1
PIK3R2	PIK3R3	PIM1	PLCG2	PLK2	PMAIP1	PMS1	PMS2
PNRC1	POLD1	POLE	PPARG	PPM1D	PPP2R1A	PPP2R2A	PPP6C
PRDM1	PREX2	PRKAR1A	PRKCI	PRKDC	PRKN	PRSS8	PTCH1
PTEN	PTPN11	PTPRD	PTPRS	PTPRT	QKI	RAB35	RAC1

Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol
RAD21	RAD50	RAD51	RAD51B	RAD51C	RAD51D	RAD52	RAD54L
RAF1	RANBP2	RARA	RASA1	RB1	RBM10	RECQL4	REL
RET	RHEB	RHOA	RICTOR	RIT1	RNF43	ROS1	RPS6KA4
RPS6KB1	RPS6KB2	RPTOR	RUNX1	RUNX1T1	RYBP	SDHA	SDHAF2
SDHB	SDHC	SDHD	SETBP1	SETD2	SF3B1	SH2B3	SH2D1A
SHQ1	SLIT2	SLX4	SMAD2	SMAD3	SMAD4	SMARCA4	SMARCB1
SMARCD1	SMC1A	SMC3	SMO	SNCAIP	SOC51	SOX10	SOX17
SOX2	SOX9	SPEN	SPOP	SPTA1	SRC	SRSF2	STAG1
STAG2	STAT3	STAT4	STAT5A	STAT5B	STK11	STK40	SUFU
SUZ12	SYK	TAF1	TBX3	TCEB1	TCF3	TCF7L2	TERC
TERT	TET1	TET2	TFE3	TFRC	TGFBR1	TGFBR2	TMEM127
TMPRSS2	TNFAIP3	TNFRSF14	TOP1	TOP2A	TP53	TP63	TRAF2
TRAF7	TSC1	TSC2	TSHR	U2AF1	VEGFA	VHL	VTCN1
WISP3	WT1	XIAP	XPO1	XRCC2	YAP1	YES1	ZBTB2
ZBTB7A	ZFXH3	ZNF217	ZNF703	ZRSR2			

Gene Table: RNA Fusions

Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol
ABL1	AKT3	ALK	AR
AXL	BCL2	BRAF	BRCA1
BRCA2	CDK4	CSF1R	EGFR
EML4	ERBB2	ERG	ESR1
ETS1	ETV1	ETV4	ETV5
EW5R1	FGFR1	FGFR2	FGFR3
FGFR4	FLI1	FLT1	FLT3
JAK2	KDR	KIF5B	KIT
KMT2A	MET	MLLT3	MSH2
MYC	NOTCH1	NOTCH2	NOTCH3
NRG1	NTRK1	NTRK2	NTRK3
PAX3	PAX7	PDGFRA	PDGFRB
PIK3CA	PPARG	RAF1	RET
ROS1	RPS6KB1	TMPRSS2	TP53

Functional Groupings

DNA SNP/INDELS:

Bladder Cancers: ARID1A, BRCA1, CDKN1A, CDKN2A, CHD4, CTNNB1, ERBB2, FBXW7, FGFR3, HRAS, KDM6A, KRAS, MSH6, PBRM1, PIK3CA, PMS2, PTPRD, PTPRT, SMARCA4, STAG2, TERT, TP53, TP63, TSC1, TSC2.

Brain Cancers: ATRX, BRAF, CDKN2A, CHEK2, CIC, CTNNB1, CUX1, EGFR, FGFR1, H3-3A, IDH1, IDH2, MAGI2, NF1, PIK3CA, PIK3R1, PTCH1, PTEN, PTPRD, PTPRT, SMARCA4, TERT, TP53, TP63, TSC2.

Breast Cancers:

Basal (Triple-Negative) Carcinomas: ATR, BLM, BRCA1, BRCA2, CASP8, CDH1, CDKN2A, EGFR, ERBB2, ERBB3, FGFR1, KMT2C, KRAS, MED12, MSH6, PIK3CA, PIK3R1, PMS2, PTEN, RAD51C, RB1, SMARCA4, TP53, XRCC2.

Ductal Carcinomas: AKT1, APC, ATM, ATR, BRCA1, BRCA2, CDH1, CDKN2A, EGFR, ERBB2, FANCC, FGFR2, GATA3, GEN1, HOXB13, KMT2C, KRAS, MED12, MLH1, MSH2, NF1, PALB2, PIK3CA, PIK3R1, PTEN, RAD51D, SMAD4, STK11, TP53.

ER-Positive & PR-Positive Carcinomas: ACVR1B, AKT1, APC, CFBF, CDH1, ERBB3, KRAS, MLH1, PIK3CA, PTEN, TP53.

HER-Positive Carcinomas: APC, AR, BMPR1A, CASP8, CDH1, CDK4, KMT2C, MLH1, MSH6, NCOR1, NF1, PALB2, PIK3CA, RAD50, SMAD4, STK11, TP53.

Lobular Carcinomas: AKT1, ATR, CDH1, ERBB2, MSH2, NF1, PALB2, PIK3CA, RB1, TP53, VHL.

Luminal Carcinomas: APC, CDH1, CDKN2A, GATA3, KRAS, MAP2K4, NBN, PIK3CA, PTEN, TP53.

Other Carcinomas: APC, AR, ATR, AXIN2, BARD1, BRIPI, CASP8, CDK6, CHEK2, CTNNB1, ERCC4, ABRAXAS1, FANCC, GEN1, HOXB13, KRAS, MED12, MEN1, MSH6, MUTYH, NBN, NF1, PALB2, PIK3CA, PMS1, PMS2, PTEN, RAD50, RAD51, RAD51C, SMAD4, SMARCA4, STK11.

Other Carcinoma-Related Genes: BAP1, EP300, ESR1, MAP3K1, MDM2, MYC, PBRM1.

Other Breast Cancer Genes: CCND1, CUX1, EPCAM, ERG, FOXP1, MAGI2, NRG1, NTRK3, PTPRD, PTPRT, RUNX1T1.

Cervical Cancers: ARID1A, BCOR, BRCA1, CASP8, CDKN2A, CHD4, CTNNB1, CUX1, ERBB2, FBXW7, FGFR2, GNAS, HRAS, KMT2C, KRAS, MAGI2, NTRK3, PIK3CA, PTPRD, PTPRT, RUNX1T1, SMARCA4, TP53, TSC1, TSC2.

Colorectal Cancers:

Adenocarcinomas: ACVR1B, AKT1, APC, ATM, AXIN2, BLM, BMPR1A, BRAF, BRCA1, BRCA2, CASP8, CDH1, CDK4, CDKN2A, CHEK2, CTNNA1, CTNNB1, EGFR, EP300, EPCAM, ERBB2, FBXW7, FGFR3, FLCN, GREM1, KIT, KRAS, MAP2K4, MET, MLH1, MSH2, MSH3, MSH6, MUTYH, NRAS, PALB2, PIK3CA, PIK3R1, PMS1, PMS2, POLD1, POLE, PTEN, RET, SMAD2, SMAD4, SRC, STK11, TCF7L2, TGFB2, TP53.

Other Colorectal Cancers: APC, BRAF, BRCA2, CDKN2A, CTNNB1, FBXW7, KRAS, NRAS, PIK3CA, SMAD4, STK11, TCF7L2, TP53.

Other Colorectal Cancer Genes: CTNNA1, GNAS, HRAS, PALB2, PMS2, PTPRD, PTPRT, RNF43, RUNX1T1, SMARCA4, SRC, TSC2.

Gastric Cancers: ARID1A, BRAF, CDH1, CTNNB1, CUX1, EPHA5, ERBB2, FGFR1, FGFR2, GNAS, KIT, KRAS, MAGI2, MET, MLH1, NRG1, NTRK3, PDGFRA, PTPRD, PTPRT, RUNX1T1, SLIT2, SMARCA4, TP53, TSC2.

Leukemia:

Acute Lymphoblastic Leukemia (ALL): ASXL2, ATM, BRAF, CALR, CDKN2A, CREBBP, CRLF2, CSF3R, CTCF, EGFR, EP300, FBXW7, GATA2, HNRNPK, HRAS, IL7R, KDM6A, KDR, KMT2C, MAP2K1, MLH1, MSH2, MSH6, NOTCH1, NTRK3, PAX5, PDGFRA, PMS2, PTEN, SMARCB1.

Acute Myeloid Leukemia (AML): ASXL1, ATM, BCOR, BCORL1, BIRC3, BRAF, CALR, CARD11, CDKN2A, CEBPA, CHEK2, CREBBP, CSF1R, CSF3R, CTCF, DAXX, DDX41, DNMT1, EP300, FLT3, GATA1, GATA2, HNRNPK, IDH1, IDH2, IKZF1, IL7R, JAK1, JAK3, KDM6A, KDR, KIT, KMT2A, KMT2C, KRAS, MAP2K1, MPL, MSH6, MYC, NBN, ANKRD26, NOTCH1, NPM1, NRAS, NSD1, NTRK3, PDGFRA, PHF6, PTEN, PTPN11, RAD21, RUNX1, SMARCB1, SMC1A, SMC3, SRSF2, STAG2, U2AF1, WT1.

Chronic Lymphocytic Leukemia (CLL): BIRC3, BLM, BRAF, CALR, CHEK2, CSF3R, KLHL6, KMT2C, MAP2K1, NBN, NTRK3, TERT.

Chronic Myeloid Leukemia (CML): ABL1, CALR, CDKN2A, CEBPA, CREBBP, CSF1R, CSF3R, FBXW7, GATA2, KDM6A, MSH2, MSH6, RB1, SMC1A, TP53.

Chronic Myelomonocytic Leukemia (CMML): CALR, CEBPA, CSF1R, CSF3R, HRAS, KMT2C, SRSF2.

Chronic Neutrophilic Leukemia (CNL): CALR, CSF3R.

Liver Cancers: CTNNB1, CUX1, EPHA5, ERG, ESR1, FGFR2, FOXP1, HNF1A, IKZF1, INPP4B, MAGI2, NRG1, NTRK2, NTRK3, PAK3, PAX5, PTPRD, PTPRT, RUNX1T1, SLIT2, SMARCA4, TCF7L2, TP53, TP63, TSC2.

Lung Cancers:

Non-Small Cell Lung Cancers (NSCLC): ALK, AMER1, APC, ATM, BRAF, CDKN2A, CTNNB1, EGFR, ERBB2, FGFR3, HRAS, JAK2, KRAS, MET, NF1, NFE2L2, NRAS, NTRK2, NTRK3, PDGFRA, PIK3CA, PIK3CG, PTEN, RB1, RET, SMARCA4, STK11, TNFAIP3, TP53.

Small Cell Lung Cancer: ALK, AMER1, ARID1A, ATM, CDKN2A, CREBBP, CTNNB1, DDR2, EGFR, EPHA5, ERBB4, FBXW7, FGFR1, HRAS, KDR, KIT, KMT2D, KRAS, LRP1B, MET, MYC, NF1, NOTCH1, NTRK1, NTRK2, NTRK3, PIK3CA, PIK3CG, PIK3R1, PTEN, PTPRD, RB1, RBM10, RET, RIT1, ROS1, RUNX1T1, SETD2, SMARCA4, TNFAIP3, TP53.

Adenocarcinomas: AKT1, ALK, AMER1, APC, ARID1A, ATM, BAP1, BRAF, CDKN2A, CDKN2B, CREBBP, CTNNB1, DDR2, EGFR, EPHA5, ERBB2, ERBB4, FBXW7, FGFR1, FGFR2, FGFR3, HRAS, JAK2, KDR, KEAP1, KIT, KMT2D, KRAS, LRP1B, MAP2K1, MDM2, MET, MGA, MLH1, MYC, NF1, NFE2L2, NOTCH1, NRAS, NTRK1, NTRK2, NTRK3, PDGFRA, PIK3CA, PIK3CG, PIK3R1, PIK3R2, PTEN, PTPRD, RB1, RBM10, RET, RIT1, ROS1, RUNX1T1, SETD2, SMAD4, SMARCA4, SOX2, STK11, TNFAIP3, TP53, TSC1, U2AF1.

Other Adenocarcinomas: BRAF, CDKN2A, CREBBP, DDR2, EGFR, ERBB2, KRAS, NF1, STK11, TP53.

Squamous Cell Carcinomas (SCC): AKT1, ALK, AMER1, APC, ARID1A, ATM, BRAF, CDKN2A, CDKN2B, CREBBP, CTNNB1, DDR2, EGFR, EPHA5, ERBB2, ERBB4, FBXW7, FGFR1, FGFR2, FGFR3, HRAS, JAK2, KDR, KEAP1, KIT, KMT2D, KRAS, LRP1B, MAP2K1, MDM2, MET, MGA, MLH1, MYC, NF1, NFE2L2, NOTCH1, NRAS, NTRK1, NTRK2, NTRK3, PDGFRA, PIK3CA, PIK3CG, PIK3R1, PIK3R2, PTEN, PTPRD, RB1, RBM10, RET, RIT1, ROS1, RUNX1T1, SETD2, SMAD4, SMARCA4, STK11, TNFAIP3, TP53, TSC1, U2AF1.

Large Cell Carcinomas: BRAF, CDKN2A, DDR2, EGFR, EPHA5, FGFR1, FGFR3, HRAS, KEAP1, KRAS, NRAS, NTRK1, NTRK3, PIK3CA, STK11, TP53.

Other Carcinomas: ARID1A, CREBBP, CTNNB1, DDR2, EGFR, HRAS, KIT, KRAS, NRAS, PIK3CA, STK11, TP53.

Other Lung Cancer Genes: CTNNB1, KRAS, PIK3CA, PTPRT, TP53, TSC2.

Melanomas: BRAF, CDKN2A, CTNNB1, CUX1, FGFR2, GNAI1, GNAQ, GRIN2A, IKZF1, KIT, MAGI2, MAP2K1, NF1, NRAS, NTRK3, PDGFRA, PIK3CA, PTEN, PTPRD, PTPRT, RUNX1T1, SMARCA4, TP53, TP63, TSC2.

Myeloid Neoplasms:

Multiple Myeloma: ATM, BCL6, BCR, BIRC3, BRAF, CDKN2A, CEBPA, EGFR, FBXW7, HRAS, KDM6A, MYC, NOTCH1, PTEN, SH2D1A, SMARCB1.

Myelodysplastic Syndromes (MDS): ATRX, CALR, CDKN2A, CEBPA, CSF1R, CSF3R, EP300, GNAS, HRAS, KDM6A, KMT2A, KMT2C, RAD21, RB1, SETBP1, SMC3, SRSF2, STAG2, U2AF1, XPO1, ZRSR2.

Myelofibrosis (MF): CALR, CHEK2, CSF1R, IDH1, IDH2, SRSF2.

Myeloid Malignancies: CBL, DNMT3A, EED, ETV6, EZH2, SUZ12, TET2, TP53.

Myeloproliferative Neoplasms (MPN): ABL1, ASXL1, CALR, CSF1R, JAK2, JAK3, KAT6A, KRAS, MPL, NF1, NRAS, RB1, SETBP1, SF3B1, SH2B3, SRSF2, STAG2.

Other Myeloid Neoplasms: ABL1, ASXL1, BRAF, CALR, CDKN2A, CEBPA, DNMT3A, ETV6, EZH2, FBXW7, FLT3, GATA2, HRAS, IDH1, IDH2, JAK2, KIT, KMT2C, KRAS, MAGI2, MPL, MSH6, MYD88, NPM1, NTRK3, PTEN, RUNX1, SF3B1, SRSF2, TET2, TP53, WT1.

Other Myeloid Neoplasm Genes: BRCA1, BRCA2, CUX1, FAS, MYD88, STAT3, TERC.

NUT Midline Carcinomas: NUTM1.

Ovarian Cancers: ARID1A, BRAF, BRCA1, BRCA2, CDKN2A, CTNNB1, CUX1, DICER1, EPHA5, ERG, FOXL2, FOXP1, KRAS, MAGI2, NRG1, NTRK3, PAX5, PDGFRA, PIK3CA, PTPRD, PTPRT, RUNX1T1, SMARCA4, TP53, TP63.

Pancreatic Cancers: ANKRD11, AR, CDKN2A, CTNNB1, CUX1, EPHA5, ERBB4, ERG, ESR1, FOXP1, GNAS, IKZF1, KRAS, MAGI2, NRG1, NTRK2, NTRK3, PTPRD, PTPRT, RUNX1T1, SLIT2, SMAD4, SMARCA4, TCF7L2, TP53.

Prostate Cancers: AR, CTNNB1, CUX1, EPHA5, ERBB4, ERG, ESR1, FGFR2, FOXP1, GRIN2A, IKZF1, INPP4B, MAGI2, NRG1, NTRK2, NTRK3, PAX5, PTPRD, PTPRT, RAD51B, RUNX1T1, SMARCA4, SPOP, TCF7L2, TP53.

Sarcomas: ALK, APC, BRAF, CDK4, CTNNB1, ETV6, EWSR1, FOXO1, GLI1, HRAS, KIT, KRAS, MDM2, MYOD1, NAB2, NF1, PAX3, PAX7, PDGFRA, PDGFRB, SDHB, SDHC, SMARCB1, TFE3, TP53.

Thyroid Cancers: BCOR, BRAF, CDKN2A, CTNNB1, CUX1, DICER1, FGFR1, GNAS, HRAS, KRAS, MEN1, NF2, NRAS, PBRM1, PIK3CA, PTPRD, RBM10, RET, SMARCA4, TERT, TP53, TSC1, TSC2, TSHR, VEGFA.

Oncogenes: ABL1, AKT1, AKT2, ALK, AR, BCL2, BCL2L1, BRAF, CARD11, CASP8, CBL, CDK4, CRKL, CRLF2, CSF1R, CTNNB1, DNMT3A, EGFR, ERBB2, ESR1, ETS1, EZH2, FGFR2, FGFR3, FLT3, FOXL2, GATA2, GNA11, GNAQ, GNAS, H3-3A, HGF, H3C2, HRAS, IDH1, IDH2, IKBKE, JAK1, JAK2, JAK3, JUN, KIT, KRAS, MAP2K1, MCL1, MDM2, MED12, MET, MPL, MYB, MYC, MYCN, MYD88, NFE2L2, NFKB1A, NRAS, PDGFRA, PIK3CA, PPP2R1A, PTPN11, RAF1, RARA, REL, RET, ROS1, RUNX1, SETBP1, SF3B1, SMO, SPOP, SRC, SRSF2, STAT3, TSHR, U2AF1.

Tumor Suppressor Genes: ACVR1B, AMER1, APC, ARID1A, ARID1B, ARID2, ARID5B, ASXL1, ASXL2, ATM, ATRX, AXIN1, B2M, BAP1, BARD1, BCOR, BRCA1, BRCA2, CDC73, CDH1, CDKN2A, CDKN2B, CEBPA, CIC, CREBBP, CYLD, DAXX, EP300, FAT1, FBXW7, FLCN, FOXP1, FUBP1, GATA1, GATA3, HNF1A, KDM5C, KDM6A, KMT2C, KMT2D, MAP3K1, MEN1, MLH1, MSH2, MSH6, NF1, NF2, NOTCH1, NOTCH2, NPM1, PAX5, PBRM1, PHF6, PIK3R1, PRDM1, PTCH1, PTEN, RB1, RNF43, SETD2, SMAD2, SMAD4, SMARCA4, SMARCB1, SOCS1, SOX9, STAG2, STK11, TET2, TNFAIP3, TP53, TSC1, TSC2, VHL, WT1, ZFH3.

Receptor Tyrosine Kinases: ALK, AXL, CSF1R, DDR2, EGFR, EPHA3, EPHA5, EPHA7, EPHB1, ERBB2, ERBB3, ERBB4, FGFR1, FGFR2, FGFR3, FGFR4, FLT1, FLT3, FLT4, IGF1R, INSR, KDR, KIT, MET, MST1R, NTRK1, NTRK2, NTRK3, PDGFRA, PDGFRB, RET, ROS1, TGFB2.

Non-Receptor Tyrosine Kinases: ABL1, ABL2, BTK, FYN, JAK1, JAK2, JAK3, LYN, SRC, SYK, YES1.

Epithelial-to-Mesenchymal Transition (EMT): BRCA2, CDKN2B, CTNNB1, ERBB2, HGF, JAK2, KIT, MCL1, NF1, NOTCH1, SMAD4, SRC, VHL.

Tumor Metastasis: AXL, ERBB3, HGF, IRF4, MAX, MET, NF1.

Cancer Therapeutic Targets: AKT1, ATM, AXL, BCL2, BCL6, BTK, CHEK1, CTNNB1, CXCR4, EPCAM, GSK3B, HSP90AA1, JAK2, MCL1, MTOR, NOTCH1, PARP1, PTCH1, SMO, SRC, STAT3, SYK, TGFBR1.

Angiogenesis: AKT1, AKT2, AKT3, BTG1, CASP8, CTNNB1, EGFL7, ERBB2, FGF1, FGF2, FGF6, FGFR2, FLT1, FLT4, GATA2, GREM1, HOXB13, JUN, KDR, NF1, NOTCH1, PDGFRA, PIK3CA, PTEN, RUNX1, SLIT2, TGFBR2, TNFAIP3, VEGFA, VHL.

Apoptosis: ABL1, ABL2, ACVR1, AKT1, AKT2, AKT3, APC, ARAF, ATM, AXIN1, BARD1, BBC3, BCL2, BCL2L1, BCL2L11, BCL2L2, BCL6, BIRC3, BRAF, BRCA1, BTG1, CASP8, CBL, CDH1, CDKN1A, CDKN1B, CDKN2A, CHEK2, CTNNA1, CTNNB1, CXCR4, CYLD, DAXX, EGFR, EP300, ERBB2, ERBB3, ETV1, FAS, FLT3, FOXL2, GATA1, HGF, HRAS, ID3, IGF1, IGF1R, IL10, IRS1, JUN, KRAS, MAP2K1, MAP2K4, MAPK1, MAPK3, MCL1, MDM4, MLH1, MSH2, MYC, MYCN, NF1, NFKBIA, NPM1, NUP93, PDK1, PIK3R2, PIM1, PRKCI, PRKDC, PTEN, RAD21, RAD50, RAD51, RAF1, RASA1, RB1, REL, RHOA, RYBP, SNCAIP, SOX9, STAT3, STK11, TERT, TNFAIP3, TOP2A, TP53, TRAF2, TRAF7, VEGFA, VHL, WT1, XIAP.

Autophagy: AKT1, BCL2, BCL2L1, CASP8, CDKN1B, CDKN2A, CXCR4, ESR1, FAS, HSP90AA1, IGF1, LAMP1, MTOR, PIK3C3, PIK3CG, PTEN, RB1, RPS6KB1, TP53.

Cell Adhesion Molecules: ABL1, ABL2, APC, CDH1, CSF3R, CTNNA1, CTNNB1, DDR2, EGFL7, EGFR, EPCAM, ERBB2, FAT1, FGF4, GATA1, JAK2, KDR, KEL, NEGR1, NF1, NF2, NOTCH1, PDGFRA, PTEN, PTPN11, PTPRS, RAC1, RET, RHOA, SRC, SYK, TSC1.

Cell Cycle: ABL1, ABL2, ACVR1, AKT1, AKT2, AKT3, APC, ATM, ATR, AURKA, AURKB, AXIN1, BCL2, BCR, BLM, BRCA1, BRCA2, BRD4, CCND1, CCND2, CCND3, CCNE1, CDC73, CDK12, CDK4, CDK6, CDK8, CDKN1A, CDKN1B, CDKN2A, CDKN2B, CDKN2C, CENPA, CHEK1, CHEK2, CREBBP, CUL3, CUX1, CYLD, DIS3, EGFR, EP300, FBXW7, FGFR2, HGF, HRAS, ID3, IGF1, IGF2, INHBA, JAK2, JUN, KLF4, KRAS, MAPK1, MAPK3, MDC1, MDM2, MDM4, MEN1, MLH1, MYC, NBN, NF2, NOTCH2, NPM1, NRAS, PDK1, PIM1, PLK2, PPM1D, PTEN, PTPRD, RAD21, RAD50, RAD51, RB1, RHEB, RHOA, SMARCA4, SMARCB1, SMC1A, SMC3, SOX2, SOX9, STAG1, STAG2, STK11, TCF3, TERT, TNFAIP3, TP53, TSC1, VEGFA, XPO1, ZFH3.

Cell Growth & Proliferation: ACVR1, AKT1, AR, BCL2, BCL2L1, BLM, BRAF, BTG1, CCND1, CDKN1B, CDKN2A, CSF1R, CTNNB1, CXCR4, EGFR, ERBB2, EWSR1, FGFR4, FLT4, HGF, HRAS, IGF1, IL10, INSR, KRAS, MAPK1, MAPK3, MDM2, MET, MPL, MYC, NF2, NFKBIA, NPM1, NRAS, PAK7, PAX5, PDGFRA, PIK3R2, PIM1, PTEN, RAF1, RASA1, SMAD3, SOCS1, SRC, SYK, TGFBR2, TMEM127, TP53, TSHR, VEGFA.

Cell Migration: ACVR1, AR, AXL, BCL2L1, CDKN1B, CTNNB1, EGFR, FGF7, IGF1, IL10, IRS1, MAP2K1, MYC, NFKBIA, PDGFRA, PTEN, SMO, STAT3, TGFBR2, VEGFA.

Cellular Senescence: ABL1, AKT1, ATM, CALR, CCND1, CCNE1, CDK4, CDK6, CDKN1A, CDKN1B, CDKN2A, CDKN2B, CDKN2C, CHEK1, CHEK2, E2F3, ETS1, GSK3B, HRAS, IGF1, IGF1R, MAP2K1, MDM2, MYC, NBN, PIK3CA, PTEN, RB1, TBX3, TERT, TP53.

Cytoskeleton Regulators: EML4, KIF5B, PAK7, SPTA1.

DNA Damage & Repair: ABL1, ABL2, APC, ATM, ATR, ATRX, AXIN2, BARD1, BLM, BRCA1, BRCA2, BRIP1, C11orf30, CCND1, CDKN1A, CHEK1, CHEK2, EP300, EPCAM, ERCC1, ERCC2, ERCC3, ERCC4, ERCC5, ABRAXAS1, FANCA, FANCC, FANCD2, FANCE, FANCF, FANCG, FANCI, FANCL, GEN1, MAPK1, MDC1, MDM2, MEN1, MLH1, MRE11, MSH2, MSH3, MSH6, MTOR, MUTYH, NBN, NPM1, PALB2, PARP1, PIK3C2B, PMS1, PMS2, POLD1, POLE, PRKDC, RAD21, RAD50, RAD51, RAD51B, RAD51C, RAD51D, RAD52, RAD54L, RECQL4, SETD2, SMC1A, SMC3, STK11, TERT, TP53, XIAP, XRCC2.

Epigenetics: ARID1A, ARID1B, ARID2, ARID5B, ASXL1, ASXL2, ATRX, AURKA, AURKB, BAPI, BCOR, BCORL1, BRD4, CENPA, CHD2, CHD4, CTCF, DICER1, DNMT1, DNMT3A, DNMT3B, DOT1L, EED, EZH2, FOXA1, H3-3A, H3F3B, H3F3C, HIST1H1C, HIST1H2BD, HIST1H3A, H3C2, HIST1H3C, H3C4, HIST1H3E, HIST1H3F, HIST1H3G, HIST1H3H, HIST1H3I, HIST1H3J, HIST2H3A, HIST2H3C, HIST2H3D, HIST3H3, IKZF1, KAT6A, KDM5A, KDM5C, KDM6A, KMT2A, KMT2B, KMT2C, KMT2D, MLLT3, NCOR1, NSD1, PBRM1, PHF6, PRDM1, RARA, RUNX1T1, RYBP, SETBP1, SETD2, SMARCA4, SMARCB1, SMARCD1, SPOP, SUZ12, TCF3, TET1, TET2, TOP1.

Growth Factors & Receptors: EGFR, ERBB2, ERBB3, ERBB4, FGF10, FGF14, FGF2, FGF23, FGF5, FGF8, FLT1, FLT4, IGF1, IGF1R, IGF2, KDR, KIT, MET, PDGFRA, PDGFRB, VEGFA.

Hormone Receptors: AR, ESR1, PGR, PPARG, RARA.

Immune Checkpoint Molecules: B2M, CD274, CD276, CD74, CTLA4, HLA-A, HLA-B, HLA-C, ICOSLG, PDCD1, PDCD1LG2, TNFRSF14, VTCN1.

Immune Response: ALK, B2M, BTK, CARD11, CD274, CD276, CD79A, CD79B, CREBBP, CRLF2, CXCR4, CYLD, EP300, FAM46C, IL7R, IRF4, JAK1, JAK2, JAK3, MAP2K1, MAP2K2, MAP3K1, MCL1, MYD88, NFKBIA, PAX5, PIK3CA, PIK3R1, PTEN, PTPN11, REL, TNFAIP3, TNFRSF14, TP53.

Inflammatory Response: BCR, CEBPA, CSF1R, CXCR4, JAK2, MYD88, REL, TNFAIP3.

Metabolism: AKT1, AKT2, AKT3, ALOX12B, ASXL2, DNAJB1, FH, FLCN, HSD3B1, IDH1, IDH2, IGF1, MTOR, PDK1, RICTOR, RPTOR, SDHA, SDHAF2, SDHB, SDHC, SDHD, STK11, TSC2.

mRNA Splicing: DHX15, QKI, RBM10, SF3B1, SHQ1, SMC1A, SRSF2, U2AF1, ZRSR2.

Proteases: KEL, PRSS8, TMPRSS2.

Signal Transduction:

Androgen Receptor Signaling: AR, CCND1, CTNNB1, DAXX, EGFR, FOXO1, IGF1, PTEN, RB1, TMPRSS2, VEGFA.

BCR-ABL Pathway: ABL1, BCR, JAK2, STAT3, STAT5A, STAT5B.

CREB Signaling & Targets: BCL2, BRCA1, CCND1, CDKN2B, FGF6, INHBA, NF1, PMAIP1, PRKARIA, RB1, STAT3.

Estrogen Receptor Signaling & Targets: BRCA1, CCND1, ERBB2, ESR1, FOXA1, HSP90AA1, IGF1, MYC, NCOA3, NCOR1, PGR, PTCH1, RARA.

Fibroblast Growth Factor Signaling: AKT1, FGF4, FGF6, FGFR1, FGFR2, FGFR3, FGFR4, PIK3CA, PIK3R1, PTEN, PTPN11, SRC.

G-Protein Coupled Receptor Signaling: AKT1, GNA11, GNAQ, GNAS, GRM3, SMO, TSHR.

G-Protein Signaling: ADGRA2, ARFRP1, CDKN1A, CDKN2A, GPS2, HRAS, KRAS, NRAS, PAK7, RAB35, RAC1, RAF1, RANBP2, RASA1, RB1, RHOA, SRC, TP53.

Growth Factor Signaling & Targets: FRS2, HRAS, IGF1, JUN, MAPK1, MAPK3, PDGFRA, STAT3, STAT5A.

Hedgehog Signaling & Targets: BCL2, CCND1, CSNK1A1, ERBB4, FGF9, FGFR3, GLI1, GSK3B, MAPK1, PTCH1, SMO, SUFU, TP53, VEGFA.

Hippo Signaling: LATS1, LATS2, NF2, YAP1.

Hypoxia Signaling & Targets: ATR, BLM, BTG1, CREBBP, EP300, MAP3K1, MET, NF1, PDK1, PIM1, SMAD4, TFRC, VEGFA, VHL.

IGF Signaling: HRAS, IGF1, IGF1R, IGF2, IRS1, JUN, MAP2K1, MAPK3, PTPN11, RAF1, RASA1.

Insulin Signaling & Targets: AKT1, AKT2, AKT3, FOXO1, INSR, IRF2, IRS1, JUN, MYD88, PDK1, PIK3CA, PIK3CB, PIK3CD, PIK3CG, TP53.

JAK / STAT Signaling & Targets: AKT1, BCL2L1, CCND1, CDKN1A, CREBBP, CSF1R, EGFR, FAS, GATA3, IFNGR1, IL10, INSR, JAK1, JAK2, JAK3, MCL1, MPL, MYC, PDGFRA, SOCS1, SRC, STAT3, STAT4, STAT5A, STAT5B.

MAP Kinase Signaling & Targets: ARAF, BRAF, CCND1, CCND2, CCND3, CCNE1, CDK4, CDK6, CDKN1A, CDKN1B, CDKN2A, CDKN2B, CDKN2C, CEBPA, EGFR, HGF, HRAS, JUN, KRAS, MAP2K1, MAP2K2, MAP2K4, MAP3K1, MAP3K13, MAP3K14, MAP3K4, MAPK1, MAPK3, MAX, MST1, MYC, NRAS, PAK1, PDGFRA, PPM1D, RAC1, RAF1, RB1, RHOA, RIT1, SOX2, SRC, STAT3, STK40, TP53, TRAF7.

MET / HGF Signaling: HGF, MET.

mTOR Signaling: AKT1, AKT2, AKT3, EIF4E, GSK3B, HRAS, IGF1, INSR, IRS1, MAPK1, MAPK3, MTOR, PDK1, PDPK1, PIK3C3, PIK3CA, PIK3CB, PIK3CD, PIK3CG, PTEN, RHEB, RHOA, RICTOR, RPS6KA4, RPS6KB1, RPS6KB2, RPTOR, STK11, TMEM127, TP53, TSC1, TSC2, VEGFA.

NFκB Signaling & Targets: AKT1, BCL10, BCL2L1, BIRC3, CARD11, CASP8, EGFR, GREM1, IKBKE, IL10, JAK2, JUN, MALT1, MAP3K1, MYD88, NFKBIA, RAF1, REL, RHOA, TNFAIP3, TRAF2.

Notch Signaling & Targets: AXIN1, CBL, CCND1, CCNE1, CDKN1A, CREBBP, CTNNB1, EP300, ERBB2, FBXW7, GATA2, GLI1, NOTCH1, NOTCH2, NOTCH3, NOTCH4, PAX5, PPARG, RUNX1, SH2D1A, SUFU.

p53 Signaling & Targets: ATM, ATR, BBC3, BRCA1, CDKN1A, CDKN2A, CHEK1, CHEK2, DNMT1, E2F3, EGFR, ESR1, FAS, MDM2, MDM4, MSH2, MYC, PPM1D, PTEN, RB1, TP63.

PI3K-AKT Signaling: AKT1, AKT2, AKT3, ALK, APC, AR, BCL2, BTK, CBL, CCND1, CCND2, CDH1, CDKN2A, CTNNB1, CXCR4, EGFR, ERBB2, FLT3, FOXO1, GSK3B, HSP90AA1, IGF1, IGF1R, INPP4A, IRS1, JAK2, KDR, KIT, MAPK1, MTOR, MYD88, NF1, NFKBIA, PAK1, PDGFRA, PDK1, PDPK1, PIK3C2G, PIK3C3, PIK3CA, PIK3CB, PIK3CD, PIK3CG, PIK3R1, PIK3R2, PIK3R3, PREX2, PTEN, SYK, TP53, VEGFA.

PTEN Signaling & Targets: AKT1, CDKN1B, EGFR, IGF1, MAPK1, MAPK3, PDK1, PDPK1, PTEN, TP53, VEGFA.

TGFβ / BMP Signaling & Targets: ACVR1, ACVR1B, BMPR1A, CDKN1A, CDKN1B, CDKN2B, CREBBP, EP300, GREM1, ID3, IGF1, INHA, INHBA, JUN, MYC, RUNX1, SMAD2, SMAD3, SMAD4, TGFBR1, TGFBR2.

WNT Signaling & Target: AMER1, APC, AXIN1, AXIN2, CCND1, CCND2, CDKN2A, CREBBP, CTNNB1, CYLD, EPCAM, FGF9, GSK3B, HNF1A, JUN, LAT51, LAT52, MED12, MYC, PPP2R1A, PPP2R2A, PPP6C, RB1, RNF43, SMAD4, SOX2, TCF7L2, TP53, TSC2, WISP3.

Other Signal Transduction Genes: AXL, CBF3, DDR2, EPHA3, EPHA5, EPHA7, EPHB1, ERBB3, ERFF1, EWSR1, FGF19, FGF3, FLT1, FLT4, GABRA6, GNA13, GRIN2A, INPP4B, IRS2, LMO1, NTRK1, NTRK2, NTRK3, PDGFRB, PLCG2, PRKCI, RET, ROS1, SOX17, SPEN.

Telomeres & Telomerase: ABL1, AKT1, ATM, BCL2, BLM, CHEK1, CHEK2, ERCC1, ERCC4, HSP90AA1, IGF1, KRAS, MEN1, MSH2, MSH3, MYC, NBN, PARP1, PAX8, PPARG, PPP2R1A, PRKDC, RAD50, RB1, RECQL4, SLX4, SMAD3, SMARCD1, TERT, TP53.

Transcription Factors: ABL1, AKT1, AR, BRCA1, BRCA2, C11orf30, CBL, CDKN2A, CEBPA, CHD4, CIC, CREBBP, CTNNB1, CUX1, DAXX, EGFR, EIF4E, EP300, ERG, ESR1, ETS1, ETV1, ETV4, ETV5, ETV6, EWSR1, FBXW7, FLI1, FOXA1, FOXL2, FOXO1, FOXP1, FUBP1, GATA1, GATA2, GATA3, GATA4, GATA6, GLI1, HNF1A, HOXB13, ID3, IRF4, JUN, KEAP1, KLF4, LMO1, LZTR1, MAX, MDM2, MEF2B, MEN1, MITF, MLLT3, MYB, MYC, MYCL, MYCN, MYOD1, NF1, NFE2L2, NKX2-1, NKX3-1, NOTCH1, PAX5, PGR, PHOX2B, PNRC1, PPARG, RARA, RB1, REL, RUNX1, SMAD2, SMAD3, SMAD4, SOX10, SOX17, SOX2, SOX9, STAT3, STAT5A, SUFU, TAF1, TBX3, TCEB1, TCF3, TCF7L2, TOP1, TP53, TSC1, VHL, WT1, ZBTB2, ZBTB7A, ZFH3, ZNF217, ZNF703.

Translation: EIF1AX, EIF4A2.

Ubiquitination: ASXL2, BAP1, BCOR, CUL3, DAXX, DCUN1D1, GID4, MDM2, PRKN, COP1, RNF43, SNCAIP, TAF1, TCEB1, TRAF7.

Unfolded Protein Response: CALR, HSP90AA1, NFE2L2, NPM1.

Microsatellite Instability (MSI) Loci: BAT25, BAT26, BAT34C4, BAT40, D10S196, D13S175, D17S250, D17S588, D17S787, D18S35, D18S55, D18S61, D18S64, D18S69, D20S100, D2S123, D3S1029, D5S107, D5S346, D7S519, D8S87, HSP110-T17, MONO-27, NR21, NR22, NR24.

GENE FUSIONS:

Bone Cancers:

Askins Tumors: ERG, EWSR1, FLI1.

Ewing's Sarcomas: ERG, ETV1, ETV4, EWSR1, FLI1.

Giant Cell Tumors: EWSR1, FLI1.

Brain Cancers:

Glioblastomas: CDK4, KDR, PDGFRA.

Gliomas: BRAF, FGFR1, FGFR3, NTRK2, PDGFRA, RAF1, ROS1.

Neuroblastomas: EWSR1, FLI1.

Breast Cancers:

Adenocarcinomas: ERBB2, NOTCH1, NOTCH2, RPS6KB1.

Carcinomas: ESR1, FGFR1, NOTCH1, NTRK3, PIK3CA, RAF1.

Invasive Carcinomas: CSF1R, ERBB2, KIT, PIK3CA, RPS6KB1.

Other Breast Cancers: AKT3, NOTCH3.

Colorectal Cancers:

Adenocarcinomas: ERBB2, FLT1, NTRK1, NTRK3.

Lynch Syndrome: MSH2.

Endometrial Cancers: ERBB2, PIK3CA.

Gastric Cancers: CSF1R, ERBB2.

Kidney Cancers: ALK, NTRK3.

Leukemia:

Acute Lymphoblastic Leukemia (ALL): ABL1, CSF1R, EWSR1, FGFR1, FLT3, JAK2, KMT2A, MLLT3, MYC, NOTCH1, PDGFRB.

Acute Myeloid Leukemia (AML): ABL1, ALK, ERG, FGFR1, JAK2, KMT2A, MLLT3, NTRK3, PDGFRA, PDGFRB.

Chronic Lymphocytic Leukemia (CLL): MYC, NOTCH1.

Chronic Myeloid Leukemia (CML): ABL1, JAK2, PDGFRB.

Chronic Myelomonocytic Leukemia (CMML): KMT2A.

Other Leukemias: ABL1, ERG, EWSR1, JAK2, KMT2A, MYC, NOTCH1, TP53.

Liver Cancers: ERBB2, FGFR2.

Lung Cancers:

Non-Small Cell Lung Cancers (NSCLC): ALK, EGFR, EML4, FGFR1, FGFR3, FGFR4, KIF5B, MET, NRG1, NTRK1, NTRK3, RET, ROS1.

Adenocarcinomas: ALK, BRAF, EML4, ERBB2, FGFR2, FGFR3, KIF5B, MET, NRG1, NTRK1, NTRK2, RET, ROS1, RPS6KB1.

Other Adenocarcinomas: ALK, EML4, KIF5B, NRG1, ROS1.

Squamous Cell Carcinomas (SCC): ALK, EML4, ERBB2, FGFR2, FGFR3, KIF5B, KIT, NRG1, RET.

Other Carcinomas: ALK, EGFR, EML4, KIF5B, RET, ROS1.

Inflammatory Myofibroblastic Tumors: ALK, EML4, ROS1.

Lymphomas:

Anaplastic Large Cell Lymphomas: ALK, MYC.

Diffuse Large B Cell Lymphomas (DLBCL): ALK, MYC.

Follicular Lymphomas: BCL2, MYC.

Hodgkin Lymphomas: ALK, JAK2, MYC.

Lymphoblastic Lymphomas: FGFR1, KMT2A, MLLT3, MYC, NOTCH1, PDGFRB.

T Cell Lymphomas: ALK, FGFR1, FGFR3, JAK2, PDGFRA.

Myeloid Neoplasms:

Myelodysplastic Syndromes (MDS): ABL1, ALK, ERG, FGFR1, JAK2, KMT2A, PDGFRB.

Myeloproliferative Neoplasms (MPN): ABL1, FGFR1, FLT3, JAK2, PDGFRA, PDGFRB.

Ovarian Cancers: AXL, BRCA1, BRCA2.

Pancreatic Cancers:

Adenocarcinomas: AKT3, BRAF, ERG, ETV1, ETV4, ETV5, PIK3CA, RAF1, TMPRSS2.

Carcinomas: BRAF, RAF1.

Prostate Cancers:

Adenocarcinomas: AKT3, AR, AXL, BRAF, ERG, ETV1, ETV4, ETV5, FLT1, PIK3CA, RAF1, TMPRSS2.

Carcinomas: ERG, ETV1, TMPRSS2.

Other Prostate Cancers: ERG, TMPRSS2, TP53.

Salivary Gland Cancers: FGFR1, NTRK3.

Sarcomas:

Askins Tumors: ERG, EWSR1, FLI1.

Biphenotypic Sarcomas with Myogenic & Neural Differentiation: EWSR1, FLI1, PAX3.

Clear Cell Sarcomas: EWSR1, FLI1.

Congenital (Infantile) Fibrosarcomas: MET, NTRK3.

Desmoplastic Small Round Cell Tumors: ERG, EWSR1, FLI1.

Ewing's Sarcomas: ERG, ETV1, ETV4, EWSR1, FLI1.

Fibrosarcomas: BRAF, EWSR1, NTRK1.

Myofibroblastic Sarcomas: ALK, NTRK1, ROS1.

Rhabdomyosarcomas: EWSR1, FLI1, PAX3, PAX7.

Small Round Cell Tumors: ERG, ETV1, EWSR1, FLI1, PAX3.

Undifferentiated; Unclassified or Other Sarcomas: ERG, ETV4, EWSR1, FGFR1, FLI1, PAX3.

Skin Cancers:

Benign Melanocytic Nevus; Spitz: ALK, BRAF, KIF5B, RET, ROS1, TP53.

Melanomas: BRAF, EWSR1, TP53.

Soft Tissue Cancers:

Desmoplastic Small Round Cell Tumors: ERG, EWSR1.

Inflammatory Myofibroblastic Tumors: ALK.

Rhabdomyosarcomas: PAX3, PAX7.

Sarcomas: ETV4, EWSR1.

Small Round Cell Tumors: ETV1, EWSR1, FLI1.

Stomach Cancers: ERBB2, FLT1, PDGFRB.

Thyroid Cancers:

Adenoma-Nodule-Goitre: PPARG, RET.

Anaplastic Carcinomas: ALK, RET.

Papillary Carcinomas: ALK, BRAF, EML4, NTRK1, NTRK3, PPARG, RET.

Urinary Tract Cancers: FGFR3, PIK3CA.

Uterine Cancers: ESR1, PIK3CA.

Other Cancers: ETS1.

Ordering Information

Product	Contents	Cat. no.
QIAseq Multimodal Panel (12)	Kit containing all reagents (except indexes) for multimodal (DNA and RNA) sequencing; fixed small panel for a total of 12 samples: 12 DNA and 12 RNA libraries	333932
QIAseq Multimodal Panel (96)	Kit containing all reagents (except indexes) for multimodal (DNA and RNA)	333935
QIAseq Multimodal HC Panel (12)	Kit containing all reagents (except indexes) for multimodal (DNA and RNA) sequencing; fixed high content (HC) panel for a total of 12 samples: 12 DNA and 12 RNA libraries	333942
QIAseq Multimodal HC Panel (96)	Kit containing all reagents (except indexes) for multimodal (DNA and RNA) sequencing; fixed high content (HC) panel for a total of 96 samples: 96 DNA and 96 RNA libraries	333945
QIAseq Multimodal Custom Panel (96)	Kit containing all reagents (except indexes) for multimodal (DNA and RNA) sequencing; custom panel for a total of 96 samples: 96 DNA and 96 RNA libraries	333955
QIAseq Multimodal Index I SW (12)	Box containing oligos, enough to process a total of 12 samples, for indexing up to a	333982
QIAseq Multimodal HT SW 96 UDI	Box containing oligos, enough to process a total of 96 samples, for indexing up to a total of 96 samples (96 for DNA and 96 for RNA) for multimodal panel sequencing on Illumina platforms. Note: For Separated Enrichment Workflow (SW) for Targeted Enrichment	333986
QIAseq Multimodal Index I (12)	Box containing oligos, enough to process a total of 12 samples, for indexing up to a total of 12 samples (12 for DNA and 12 for RNA libraries) for multimodal panel sequencing on Illumina platforms. Note: For Combined Enrichment Workflow (CW) for Targeted Enrichment	333962
QIAseq Multimodal HT CW 96 UDI	Box containing oligos, enough to process a total of 96 samples, for indexing up to a	333979
Related products		
QIAseq DNA QuantiMIZE Assay Kit	qPCR assays for optimizing amount of input DNA and PCR cycling conditions for targeted enrichment of FFPE DNA	333414
QIAamp® DNA Mini Kit (50)	For 50 DNA preps: 50 QIAamp Mini Spin Columns, QIAGEN Proteinase K, collection tubes (2 mL), reagents and buffers	51304

Product	Contents	Cat. no.
QIAamp Circulating Nucleic Acid Kit (50)	For 50 DNA preps: QIAamp Mini Columns, Tube Extenders (20 mL), QIAGEN Proteinase K, carrier RNA, buffers, VacConnectors, and collection tubes (1.5 mL and 2 mL)	55114
AllPrep DNA/RNA Mini Kit (50)	For 50 minipreps: AllPrep DNA Spin Columns, RNeasy Mini Spin Columns, collection tubes, RNase-free water, and buffers	80204
AllPrep DNA/RNA FFPE Kit (50)	50 RNeasy MinElute Spin Columns, 50 QIAamp MinElute Spin Columns, collection tubes, RNase-free reagents, and buffers	80234
PAXgene Blood DNA Kit (25)	Processing tubes and buffers for 25 preparations	761133
PAXgene Blood RNA Kit (50)	50 PAXgene Spin Columns, 50 PAXgene Shredder Spin Columns, processing tubes, RNase-Free DNase I, RNase-free reagents and buffers	Inquire

QIAseq Multimodal Panels are intended for molecular biology applications. These products are not intended for the diagnosis, prevention or treatment of a disease.

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Sample to Insight