

437 gene, pan-solid tumor, next generation sequencing assay

- Detects mutations, copy number variations (amplification and deep deletions), insertions and deletions in over 417 genes
- Fusion events are detected across 59 driver genes by RNA sequencing
- Microsatellite instability status and tumor mutation burden are included on every test report
- The test is optimized for small formalin fixed paraffin embedded (FFPE) tumor tissue samples ($\geq 2\text{mm}^2$ surface area)
- Turnaround time: median 7 business days

DNA Genes

Prioritized mutations and high-confidence somatic variants of unknown significance are reported for the following genes from a wide panel and a high depth (genes indicated in bold) panel. Copy number alterations (amplifications for oncogenes and deep deletions for tumor suppressors) are reported for underlined genes. Genes indicated with an asterisk have targeted coverage for reporting of pre-specified hotspot mutations from the high depth panel only.

ABL1	BCL6	<u>CDKN2B</u>	EPHA3	FLI1	IGF2R	LTK	MTR	<u>PALB2</u>	<u>PRDM1</u>	<u>SETD2</u>	TGM7
ABL2	BCL9	<u>CDKN2C</u>	EPHA7	FLT1	IKBKB	MAF	MTRR	<u>PARP1</u>	<u>PRKAR1A</u>	SF3B1	THBS1
ACVR2A	BCR	<u>CEBPA</u>	EPHB1	FLT3	IKBKE	MAFB	MUC1	PAX3	PRKDC	SGK1	TIMP3
ADAMTS20	BIRC2	<u>CHEK1</u>	EPHB4	FLT4	IKZF1	MAGEA1	<u>MUTYH</u>	PAX5	PSIP1	<u>SH2D1A</u>	TLR4
AFF1	BIRC3	<u>CHEK2</u>	EPHB6	FN1	IL2	MAG11	<u>MYB</u>	PAX7	PTCH1	<u>SMAD2</u>	TLX1
AFF3	BIRC5	<u>CIC</u>	ERBB2	FOXL2	IL21R	MALT1	MYC	PAX8	PTEN	<u>SMAD4</u>	<u>TNFAIP3</u>
AKAP9	<u>BLM</u>	CKS1B	ERBB3	<u>FOXO1</u>	<u>IL6ST</u>	MAML2	<u>MYCL</u>	<u>PBRM1</u>	PTGS2	<u>SMARCA4</u>	<u>TNFRSF14</u>
AKT1	BLNK	CMPK1	ERBB4	FOXO3	IL7R	MAP2K1	MYCN	PBX1	PTPN11	<u>SMARCB1</u>	TNK2
<u>AKT2</u>	<u>BMPR1A</u>	COL1A1	<u>ERCC1</u>	<u>FOXP1</u>	ING4	MAP2K2	MYD88	PDE4DIP	<u>PTPRD</u>	SMO	<u>TOP1</u>
<u>AKT3</u>	BRAF	CRBN	<u>ERCC2</u>	<u>FOXP4</u>	IRF4	MAP2K4	MYH11	PDGFB	<u>PTPRT</u>	SMUG1	TP53
ALK	BRCA1	CREB1	<u>ERCC3</u>	FZR1	IRS2	MAP2K7*	MYH9	PDGFRA	<u>RAD50</u>	SOCS1	TPR
<u>APC</u>	BRCA2	CREBBP	<u>ERCC4</u>	G6PD	ITGA10	<u>MAP3K7</u>	NBN	<u>PDGFRB</u>	RAF1	SOX11	TRIM24
AR	BRD3	<u>CRKL</u>	<u>ERCC5</u>	GATA1	ITGA9	MAPK1	NCOA1	PER1	RALGDS	SOX2	TRIM33
ARAF*	<u>BRIP1</u>	CRTC1	ERG	GATA2	ITGB2	MAPK8	NCOA2	PGAP3	RARA	SPOP*	TRIP11
<u>ARID1A</u>	BTK	CSF1R	ESR1	GATA3	ITGB3	MARK1	NCOA4	<u>PHOX2B</u>	RB1	SRC	TRRAP
<u>ARID2</u>	BUB1B	CSMD3	ETS1	GDNF	JAK1	MARK4	NF1	<u>PIK3C2B</u>	RECQL4	SSX1	<u>TSC1</u>
ARNT	CARD11	<u>CTNNA1</u>	ETV1	GNA11	JAK2	MBD1	NF2	PIK3CA	REL	<u>STK11</u>	<u>TSC2</u>
ASXL1	CASC5	CTNNB1	ETV4	GNAQ	JAK3	<u>MCL1</u>	NFE2L2	<u>PIK3CB</u>	RET	STK36	TSHR
ATF1	CBL	<u>CYLD</u>	EXT1	GNAS	JUN	MDM2	NFKB1	PIK3CD	RHOH	<u>SUFU</u>	<u>UBR5</u>
ATM	CCND1	CYP2C19	EXT2	GPR124	KAT6A	<u>MDM4</u>	NFKB2	PIK3CG	RIT1*	SYK	UGT1A1
<u>ATR</u>	<u>CCND2</u>	CYP2D6	EZH2	GRM8	KAT6B	<u>MEN1</u>	NIN	<u>PIK3R1</u>	RNASEL	SYNE1	USP9X
<u>ATRX</u>	<u>CCNE1</u>	<u>DAXX</u>	<u>FAM123B</u>	GUCY1A2	<u>KDM5C</u>	MET	<u>NKX2-1</u>	<u>PIK3R2</u>	RNF2	TAF1	<u>VHL</u>
<u>AURKA</u>	CD79A	<u>DCC</u>	<u>FANCA</u>	HCAR1	<u>KDM6A</u>	MITF	NLRP1	PIM1	RNF213	TAF1L	WAS
AURKB	CD79B	DDB2	<u>FANCC</u>	HIF1A	KDR	<u>MLH1</u>	<u>NOTCH1</u>	PKHD1	ROS1	TAL1	WHSC1
AURKC	<u>CDC73</u>	DDIT3	<u>FANCD2</u>	HLF	KEAP1	<u>MLL</u>	<u>NOTCH2</u>	PLAG1	RPS6KA2	TBX22	<u>WRN</u>
<u>AXL</u>	<u>CDH1</u>	DDR2	<u>FANCE</u>	HNF1A	KIT	<u>MLL2</u>	<u>NOTCH4</u>	PLCG1	RRM1	TCF12	<u>WT1</u>
BAI3	CDH11	<u>DEK</u>	<u>FANCG</u>	HOOK3	KLF6	<u>MLL3</u>	NPM1	PLEKHG5	<u>RUNX1</u>	<u>TCF3</u>	XPA
<u>BAP1</u>	CDH2	<u>DICER1</u>	<u>FAS</u>	HRAS	KRAS	MLLT10	NRAS	PML	RUNX1T1	TCF7L1	XPC
<u>BCL10</u>	CDH20	<u>DNMT3A</u>	<u>FBXW7</u>	HSP90AA1	LAMP1	MMP2	<u>NSD1</u>	<u>PMS1</u>	SAMD9	<u>TCF7L2</u>	XPO1
BCL11A	CDH5	DPYD	FGFR1	HSP90AB1	LCK	MN1	NTRK1	<u>PMS2</u>	SBDS	TCL1A	<u>XRCC2</u>
BCL11B	<u>CDK12</u>	DST	FGFR2	ICK	LIFR	MPL	NTRK3	POLE*	<u>SDHA</u>	TERT*	ZNF384
BCL2	CDK4	EGFR	FGFR3	IDH1	LPHN3	<u>MRE11A</u>	NUMA1	POT1	SDHB	<u>TET1</u>	ZNF521
BCL2L1	CDK6	EML4	FGFR4	IDH2	LPP	MSH2	NUP214	POU5F1	SDHC	<u>TET2</u>	
BCL2L2	<u>CDK8</u>	EP300	<u>FH</u>	IGF1R	<u>LRP1B</u>	MSH6	NUP98	<u>PPARG</u>	<u>SDHD</u>	TFE3	
BCL3	CDKN2A	EP400	<u>FLCN</u>	IGF2	LTF	MTOR	PAK3	<u>PPP2R1A</u>	SEPT9	<u>TGFBR2</u>	

Genes Fusions by RNA Sequencing

Over 950 individual fusion isoforms involving the following 59 driver genes are targeted; additional fusion isoforms amplified from non pre-specified 5' and 3' primer pairs are also reportable.

AKT2	CSF1	ETV1	FGFR3	MET	NR4A3	PAX3	PPARG	RELA	SSX4
ALK	EGFR	ETV4	FGR	MYB	NRG1	PAX7	PRKACA	RET	STAT6
AXL	ERBB2	ETV5	FLT3	MYBL1	NTRK1	PDGFRA	PRKACB	ROS1	TERT
BRAF	ERBB4	EWSR1	FUS	NF1	NTRK2	PDGFRB	PTEN	RSPO2	TFE3
CALMTA1	ERG	FGFR1	JAK2	NOTCH1	NTRK3	PIK3CA	RAD51B	RSPO3	YWHAE
COL1A1	ESR1	FGFR2	KRAS	NOTCH4	NUTM1	PLG1	RAF1	SSX1	