

Signaling pathway

Apoptosis	BCL2	BCL2L1	BCL2L2	CASP8	DAXX
Cell cycle	BTG2	CCND1	CCND3	CCND2	CCNE1
Cell division	AURKA	AURKB	RAD21	STAG2	
Core DNA Damage Response	BARD1	BRCA1	BRCA2	BRIP1	ERCC4
DNA damage control	FANCG	MUTYH	POLD1	RAD51B	RAD51C
Epigenetic modification	ARID1A	ASXL1	ATRX	BCOR	BCORL1
GPCR	CXCR4	GNA11	GNA13	GNAQ	GNAS
Hedgehog	PRKCI	PTCH1	SMO	SUFU	
Hippo	NF2				
Immune	ALOX12B	BCL6	BTK	CD22	CD70
JAK/STAT	CALR	CSF1R	JAK1	JAK2	JAK3
KEAP1/NRF2	CUL3	KEAP1	NFE2L2		
Metabolic pathway	CYP17A1	FH	HSD3B1	MTAP	NT5C2
MYC	MYC	MYCL1	MYCN		
NFKB	CARD11	MYD88	NFKBIA	REL	TNFAIP3
NOTCH	NOTCH1	NOTCH2	NOTCH3		
Nuclear reseptor	AR	ESR1	PPARG	RARA	
PI3K/Akt/mTOR	AKT1	AKT2	AKT3	CRKL	FLCN
Protein homeostasis	BAP1	CUL4A	FBXW7	SPOP	
Ras/Raf/MEK/ERK	ARAF	BRAF	CIC	HRAS	KRAS
RNA metabolism	BTG1	EWSR1	QKI	RBM10	SF3B1
RTK	ABL1	ALK	AXL	CBL	DDR1
TGF-B	ACVR1B	SMAD2	SMAD4	TGFBR2	
TP53	ATM	ATR	CHEK1	CHEK2	MDM2
Transcriptional regulation	BRD4	CBFB	CDC73	CDK12	CEBPA
Wnt/ β -catenin	APC	AXIN1	CDH1	CTNNA1	CTNNB1
-	ARFRP1	BCR	C17orf39	EMSY	FAM46C

Supplementary Table 1: List of signaling pathways affected

FAS	MCL1							
CDK4	CDK6	CDKN1A	CDKN1B	CDKN2A	CDKN2B	CDKN2C	RB1	
FANCA	FANCC	FANCL	MLH1	MSH2	MSH3	MSH6	MRE11A	NBN
RAD51D	RAD54L	TERT						
CDK8	CREBBP	CTCF	DIS3	DNMT3A	DOT1L	EED	EP300	EZH2
GRM3	P2RY8							
CD79A	CD79B	CD274	CSF3R	IKBKE	IRF2	IRF4	LYN	PDCD1
MPL	PIM1	SOCS1	STAT3					
PDK1	SDHA	SDHB	SDHC	SDHD	TIPARP			
INPP4B	MTOR	PIK3C2B	PIK3C2G	PIK3CA	PIK3CB	PIK3R1	PPP2R1A	PPP2R2A
MAP2K1	MAP2K2	MAP2K4	MAP3K1	MAP3K1	MAPK1	MKNK1	NF1	NRAS
U2AF1	XPO1							
DDR2	EGFR	EPHA3	EPHB1	EPHB4	ERBB2	ERBB3	ERBB4	ERRFI1
MDM4	TP53							
ERG	ETV6	FOXL2	FUBP1	GATA3	HNF1A	ID3	IKZF1	JUN
FAM123A	GSK3B	RNF43	SOX9					
GABRA6	KEL	KLHL6	LTK	MERTK	PARK2	SNCAIP		

l by genomic alterations

Gene list

PALB2 PARP1 PMS2 POLE RAD51 RAD52 XRCC2

GATA4 GATA6 H3F3A HDAC1 IDH1 IDH2 KDM5A KDM5C KDM6A

PDCD1L SYK TNFRSF14

PRKAR1 PTEN RICTOR RPTOR SGK1 STK11 TSC1 TSC2 VHL

PTPN11 RAC1 RAF1 SRC FLT3

FGF3 FGF4 FGF6 FGF10 FGF12 FGF14 FGF19 FGF23 FGFR1

MAF MED12 MITF MYB NKX2-1 PAX5 PRDM1 SPEN SOX2

MEF2B MEN1 MLL MLL2 NPM1 PARP2 PARP3 PBRM1 SETD2

FGFR2 FGFR3 FGFR4 FLT1 HGF IGF1R IRS2 KDR KIT

TBX3 TMPRSS:WT1

SMARCA5 SMARCB1 TET2 WHSC1 WHSC1L ZNF217 ZNF703

MET MST1R NTRK1 NTRK2 NTRK3 PDGFRA PDGFRB PTPRO RET

ROS1 TEK TYRO3 VEGFA