

"T'EMPUS

xO PANEL DNA GENE LIST

~1700 gene comprehensive cancer panel
 enriched for clinically actionable genes
 with additional biologically relevant genes
 (at 400 -500x average coverage on tumor)

Genes A-C

AATK	ATAD2B	BTG1	CDH7	CREM
ABCA1	ATF1	BTG2	CDK1	CRHR1
ABCB1	ATM	BTG3	CDK10	CRK
ABCB11	ATR	BTK	CDK11A	CRKL
ABCB4	ATRX	BTRC	CDK11B	CRLF2
ABCC1	AURKA	BUB1	CDK12	CRTC1
ABCC2	AURKB	BUB1B	CDK13	CRTC2
ABCG1	AURKC	BUB3	CDK14	CRTC3
ABCG2	AXIN1	C11orf30	CDK15	CSF1
ABI1	AXIN2	CACNA1C	CDK16	CSF1R
ABL1	AXL	CACNA1S	CDK17	CSF2RA
ABL2	B2M	CACNB2	CDK18	CSF2RB
ACE	BABAM1	CADM2	CDK19	CSF3R
ACSL6	BACH1	CALR	CDK2	CSK
ACTA2	BACH2	CAMTA1	CDK20	CSNK1D
ACTC1	BAG4	CAPRN2	CDK3	CSNK1E
ACVR1	BAI3	CARD10	CDK4	CTCF
ACVR1B	BAP1	CARD11	CDK5	CTCFL
ACVR2A	BARD1	CARD6	CDK6	CTLA4
ACVR2B	BAX	CARD8	CDK7	CTNNA1
ADAM17	BAZ1A	CARM1	CDK8	CTNNA2
ADAMTS20	BAZ1B	CASC11	CDK9	CTNNA3
ADRB1	BAZ2A	CASP8	CDKN1A	CTNNB1
ADRB2	BAZ2B	CBFA2T2	CDKN1B	CTNND1
AFF1	BBC3	CBFA2T3	CDKN1C	CTSD
AFF2	BCAR3	CBFB	CDKN2A	CTS1
AFF3	BCL10	CBL	CDKN2B	CTSS
AHR	BCL11A	CBLB	CDKN2C	CUL3
AIP	BCL11B	CBLC	CDKN3	CUL4A
AJUBA	BCL2	CBX1	CDX1	CUL4B
AKAP9	BCL2A1	CBX2	CDX2	CUX1
AKT1	BCL2L1	CBX3	CEBPA	CYLD
AKT2	BCL2L11	CBX4	CEBPB	CYP17A1
AKT3	BCL2L2	CBX5	CEBPD	CYP1A2
ALK	BCL3	CBX6	CEBPE	CYP21A2
ALKBH6	BCL6	CBX7	CEBPG	CYP2A6
ALOX12B	BCL7A	CBX8	CEBPZ	CYP2B6
ALOX5	BCL9	CCDC6	CECR2	CYP2C19
AMER1	BCLAF1	CCNB3	CENPE	CYP2C8
APC	BCOR	CCND1	CES1	CYP2C9
APEX1	BCORL1	CCND2	CES2	CYP2D6
APH1A	BCR	CCND3	CHD1	CYP2J2
APOA1	BDNF	CCNE1	CHD1L	CYP2R1
APOB	BID	CCNE2	CHD2	CYP3A4
AR	BIRC2	CCNL1	CHD3	CYP3A5
ARAF	BIRC3	CD1D	CHD4	CYP4F2
AREG	BIRC5	CD22	CHD5	
ARFRP1	BIRC8	CD274	CHD6	
ARHGAP10	BLK	CD276	CHD7	
ARHGAP26	BLM	CD28	CHD9	
ARHGAP35	BLNK	CD40	CHEK1	
ARID1A	BMI1	CD40LG	CHEK2	
ARID1B	BMPR1A	CD44	CHIC1	
ARID2	BMPR1B	CD70	CHIC2	
ARID5B	BMX	CD79A	CHUK	
ARNT	BPTF	CD79B	CIC	
ARNT2	BRAF	CD80	CIITA	
ARPC1A	BRCA1	CD86	CKS1B	
ARPC1B	BRCA2	CDC14A	CKS2	
ARTN	BRD1	CDC20	CLIP1	
ARX	BRD2	CDC25A	CMPK1	
ASCL1	BRD3	CDC25B	CNKSR1	
ASCL2	BRD4	CDC25C	CNOT3	
ASCL3	BRD7	CDC42	CNTFR	
ASCL4	BRD8	CDC6	COL3A1	
ASCL5	BRD9	CDC73	COMT	
ASH1L	BRDT	CDH1	COP3	
ASH2L	BRIP1	CDH10	CRBN	
ASPSR1	BRPF1	CDH11	CREB1	
ASXL1	BRPF3	CDH2	CREB3L1	
ASXL2	BRWD1	CDH20	CREB3L2	
ASXL3	BRWD3	CDH3	CREB3L4	
ATAD2	BTC	CDH5	CREBBP	

Genes D-F

DACH1	EPHA1	FES
DACH2	EPHA2	FEV
DAXX	EPHA3	FGF1
DBH	EPHA4	FGF10
DCC	EPHA5	FGF11
DCUN1D1	EPHA6	FGF12
DCUN1D2	EPHA7	FGF13
DD2	EPHA8	FGF14
DDIT3	EPHB1	FGF16
DDR1	EPHB2	FGF17
DDR2	EPHB3	FGF18
DDX3X	EPHB4	FGF19
DDX5	EPHB6	FGF2
DDX6	EPOR	FGF20
DEK	ERBB2	FGF21
DHFR	ERBB3	FGF22
DHH	ERBB4	FGF23
DIAPH1	ERCC1	FGF3
DIAPH2	ERCC2	FGF4
DIAPH3	ERCC3	FGF5
DICER1	ERCC4	FGF6
DIRAS3	ERCC5	FGF7
DIS3	EREG	FGF8
DKC1	ERF	FGF9
DMXL1	ERG	FGFR1
DNM2	ESCO1	FGFR2
DNMT1	ESCO2	FGFR3
DNMT3A	ESPL1	FGFR4
DNMT3B	ESR1	FGR
DNMT3L	ESR2	FH
DOCK2	ESRRA	FHIT
DOT1L	ETS1	FIGF
DPYD	ETS2	FKBP10
DRD1	ETV1	FKBP5
DRD2	ETV2	FKBP9
DSC2	ETV3	FLCN
DSG2	ETV3L	FLG
DSP	ETV4	FLI1
DUSP22	ETV5	FLT1
DVL1	ETV6	FLT3
DVL2	ETV7	FLT3LG
DVL3	EWSR1	FLT4
DYRK2	EXT1	FOLH1
E2F1	EXT2	FOS
E2F3	EXTL1	FOSB
E2F5	EZH1	FOSL1
E2F6	EZH2	FOSL2
E2F7	FADD	FOXA1
EBF1	FAM175A	FOXA2
ECT2L	FAM46C	FOXA3
EED	FANCA	FOXP1
EGF	FANCB	FOXP2
EGFR	FANCC	FOXP3
EGR1	FANCD2	FOXO1
EGR2	FANCE	FOXO3
EHF	FANCF	FOXO4
EHMT1	FANCG	FOXO6
EHMT2	FANCI	FOXO7
EIF1AX	FANCL	FOXQ1
ELANE	FANCM	FOXQ2
ELF1	FAS	FOXQ3
ELF2	FASLG	FOXQ4
ELF3	FAT1	FOXQ1
ELF4	FAT2	FRK
ELF5	FAT3	FRS2
ELK1	FAT4	FRS3
ELK3	FBN1	FSHR
ELK4	FBXO11	FUBP1
ELP3	FBXO8	FUS
EML4	FBXW11	FYN
EP300	FBXW7	FZR1
EPCAM	FEN1	
EPGN	FER	

Genes G-I

G6PC3	HGF	IL18RAP
G6PD	HIF1A	IL1R1
GAB1	HIF1AN	IL1R2
GAB2	HIST1H1E	IL1RAP
GABPA	HIST1H3B	IL20RA
GALNT12	HIST1H4E	IL20RB
GATA1	HLA-A	IL21R
GATA2	HLA-B	IL22RA1
GATA3	HLF	IL22RA2
GATA5	HLTF	IL23R
GATA6	HMGA1	IL2RA
GDNF	HMGA2	IL2RB
GF1	HMGCR	IL2RG
GF1B	HNF1A	IL3
GFRA4	HNF1B	IL3RA
GGCX	HNRNPA3	IL4R
GHR	HOXA10	IL5RA
GID4	HOXA11	IL6R
GLA	HOXA13	IL6ST
GLCC1	HOXA3	IL7R
GLI1	HOXA9	IL9R
GLI2	HOXB13	ING1
GLI3	HOXB3	ING4
GLIS1	HOXC10	INHBA
GLIS2	HOXC11	INPP4B
GLIS3	HOXC13	INSR
GNAI1	HOXD10	INSRR
GNAI3	HOXD11	INTS12
GNAQ	HOXD13	IQGAP1
GNAS	HOXD3	IQGAP2
GNRHR	HOXD4	IQGAP3
GOT1	HR	IRAK1
GPC3	HRAS	IRF4
GPC5	HSD11B2	IRF5
GPR124	HSD3B1	IRF6
GPS2	HSP90AA1	IRS1
GRB10	HSP90AB1	IRS2
GRB2	HSPBAP1	IRS4
GRB7	HTR1A	ITK
GREM1	HTR2A	ITPKB
GRIN2A	ICK	
GRK4	ICOS	
GRK5	ICOSLG	
GRM3	ID1	
GRM8	ID2	
GSK3A	ID3	
GSK3B	ID4	
GSTT1	IDH1	
GTPBP4	IDH2	
GUCY1A2	IFNLR1	
H3F3A	IGF1	
HAX1	IGF1R	
HBEGF	IGF2	
HCK	IGF2R	
HDAC1	IHH	
HDAC10	IKBIP	
HDAC11	IKBKAP	
HDAC2	IKBK1	
HDAC3	IKBKE	
HDAC4	IKZF1	
HDAC5	IKZF2	
HDAC6	IKZF3	
HDAC7	IL10RA	
HDAC8	IL10RB	
HDAC9	IL11RA	
HDGF	IL12RB1	
HDFRFP3	IL12RB2	
HELLS	IL13RA1	
HES1	IL15RA	
HES2	IL17RA	
HES4	IL17RB	
HEY1	IL17RC	
HEY2	IL18R1	

Genes J-L

JADE1	LMO1
JAK1	LMO2
JAK2	LMO7
JAK3	LMTK2
JARID2	LMTK3
JAZF1	LPHN2
JMJD1C	LPHN3
JMJD4	LPP
JMJD6	LRP1B
JMJD7	LRP5
JMJD8	LRP6
JUN	LRRK2
JUNB	LSM1
JUND	LTK
JUP	LYL1
KAT2A	LYN
KAT2B	LZTR1
KAT5	
KAT6A	
KAT6B	
KAT7	
KAT8	
KCNH2	
KCNJ5	
KCNQ1	
KDM1A	
KDM1B	
KDM2A	
KDM2B	
KDM3A	
KDM3B	
KDM4A	
KDM4B	
KDM4C	
KDM4D	
KDM5A	
KDM5B	
KDM5C	
KDM5D	
KDM6A	
KDM6B	
KDM7A	
KDM8	
KDR	
KDSR	
KEAP1	
KEL	
KHSRP	
KIAA1804	
KIF1B	
KIT	
KITLG	
KLF12	
KLF4	
KLF5	
KLF6	
KLF8	
KMT2B	
KMT2E	
KRAS	
LATS1	
LATS2	
LCK	
LDB1	
LDLR	
LEF1	
LEPR	
LGR4	
LGR5	
LGR6	
LHCGR	
LIFR	
LMNA	

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Genes M-O

MAD1L1 MLF1 NFKBIA
MAD2L1 MLH1 NFKBIB
MAD2L2 MLH3 NFKBID
MAF MLL NFKBIE
MAFB MLL2 NFKBIZ
MAGED1 MLL3 NGF
MAGI2 MLLT1 NHP2
MAK MLLT10 NIPBL
MALT1 MLLT11 NKX2-1
MAML1 MLLT3 NKX2-2
MAML2 MLLT6 NKX2-3
MAML3 MLST8 NKX2-4
MAMLD1 MN1 NKX2-5
MAQA MNX1 NKX2-6
MAP2K1 MOB1A NKX2-8
MAP2K2 MOB1B
MAP2K3 MOS NKX3-2
MAP2K4 MPG NLRP1
MAP2K5 MPL NOD2
MAP2K6 MRE11A NONO
MAP2K7 MSH2 NOP10
MAP3K1 MSH3 NOTCH1
MAP3K10 MSH4 NOTCH2
MAP3K11 MSH6 NOTCH2NL
MAP3K12 MSI2 NOTCH3
MAP3K13 MST1 NOTCH4
MAP3K14 MST1R NPM1
MAP3K15 MTAP NPPB
MAP3K19 MTCP1 NPR1
MAP3K2 MTDH NQO1
MAP3K3 MTOR NR0B1
MAP3K4 MUSK NR3C1
MAP3K5 MUTYH NR3C2
MAP3K6 MXD1 NR4A1
MAP3K7 MYB NR4A2
MAP3K8 MYBL1 NR4A3
MAP3K9 MYBL2 NRAS
MAP4 MYBPC3 NRG1
MAP4K1 MYC NRG2
MAP4K2 MYCL NRG3
MAP4K3 MYCN NRG4
MAP4K4 MYD88 NRIP1
MAP4K5 MYH11 NRTN
MAPK1 MYH7 NSD1
MAPK10 MYL2 NTF3
MAPK11 MYL3 NTF4
MAPK12 MYLK NTF4
MAPK13 MYOD1 NTRK1
MAPK14 NAB1 NTRK2
MAPK15 NAB2 NTRK3
MAPK3 NAT2 NUMB
MAPK4 NBN NUMBL
MAPK6 NCK1 NUP214
MAPK7 NCK2 NUP93
MAPK8 NCOA1 NUP98
MAPK9 NCOA2 NUTM1
MARCH1 NCOA3 NUTM2A
MAST1 NCOA4 NUTM2B
MAST2 NCOR1 NUTM2F
MATK NCOR2 NUTM2G
MAU2 NCSTN ODC1
MAX NDRG1 ODZ2
MBD1 NEK1 OLIG2
MBD3 NEK10 OSMR
MC1R NEK11
MCL1 NEK2A
MCPH1 NEK3
MDM2 NEK4
MDM4 NEK5
MDS2 NEK6
MECOM NEK7
MED12 NEK8
MED12L NEK9
MED29 NF1
MEF2B NF2
MEN1 NFATC1
MERTK NFATC2
MET NFATC3
MGA NFATC4
MGMT NFE2L2
MID1 NFIA
MINK1 NFIB
MIPOL1 NFIC
MITF NFIX
MKL1 NFKB1
MKL2 NFKB2

Genes P-R

PAK1 PML PTPRC
PAK2 PMS1 PTPRD
PAK3 PMS2 PTPRF
PAK4 PNRC1 PTPRG
PAK6 POLD1 PTPRJ
PAK7 POLE PTPRK
PALB2 POR PTPRM
PALLD POT1 PTPRO
PARK2 POU2AF1 PTPRR
PARP1 POU2F2 PTPRT
PARP2 POU5F1 PTTG1
PARP4 POU5F1B PVT1
PAT21 POU5F2 RAB23
PAX1 POU6F1 RAB25
PAX2 POU6F2 RABEP1
PAX3 PPARA RAC1
PAX4 PPARD RAC2
PAX5 PPARG RAD21
PAX6 PPF1A RAD50
PAX7 PPM1D RAD51
PAX8 PPP1R1C RAD51AP1
PAX9 PPP2R1A RAD51B
PAXIP1 PPP2R1B RAD51C
PBRM1 PPP2R2B RAD51D
PBX1 PPP6C RAD52
PBX2 PRCC RAD54B
PBX3 PRDM1 RAD54L
PBX4 PRDM10 RAF1
PCBP1 PRDM11 RAP1GDS1
PCSK9 PRDM12 RARA
PDCD1 PRDM13 RARB
PDCD1LG2 PRDM14 RARG
PDGFA PRDM15 RAS1
PDGFB PRDM16 RB1
PDGFC PRDM2 RBM10
PDGFD PRDM4 RBM14
PDGFRA PRDM5 RBM15
PDGFRB PRDM6 RBMX
PDK1 PRDM7 RBMXL1
PDPK1 PRDM8 RBMXL2
PDS5A PRDM9 RBPJ
PDS5B PREX2 SHFM1
PEAR1 PRF1 SHH
PEG3 PRKACA SHOC2
PERP PRKACB REL
PGF PRKAG2 RELB
PGR PRKAR1A RET
PHB PRKAR1B RHEB
PHF1 PRKCI RHOA
PHF2 PRKD1 RHOB
PHF6 PRKDC RHOH
PHF8 PRLR RHOT1
PHIP PRMT1 RICTOR
PHLPP1 PRMT2 RIPK1
PHLPP2 PRMT3 RIPK2
PHOX2A PRMT5 RIPK3
PHOX2B PRMT6 RIPK4
PICALM PRMT7 RIT1
PIK3C2A PRMT8 RNF213
PIK3C2B PRPF40B RNF40
PIK3C2G PRPF6 RNF43
PIK3C3 PRRX1 ROBO2
PIK3CA PRRX2 ROCK1
PIK3CB PRSS1 ROCK2
PIK3CD PRSS3 ROR1
PIK3CG PRSS8 ROR2
PIK3R1 PSEN1 ROS1
PIK3R2 PSEN2 RPA1
PIK3R3 PSENEN RPL5
PIK3R4 PSIP1 RPN1
PIM1 PSPN RPS6KB1
PIM2 PTCH1 RPS6KB2
PIM3 PTCH2 RPTOR
PKHD1 PTEN RRM1
PKP2 PTGIS RSP02
PLA2G2A PTGS1 RSP03
PLAG1 PTGS2 RUNX1
PLAGL1 PTK2 RUNX1T1
PLAGL2 PTK2B RUNX2
PLCG1 PTK6 RUNX3
PLCG2 PTK7 RUVBL1
PLK1 PTPN11 RXRA
PLK2 PTPN2 RYK
PLK3 PTPN21 RYR1
PLK4 PTPN6 RYR2
PMAIP1 PTPRB

Genes S-T

SAMD9 SMC4 TAOK2
SAV1 SMC5 TAOK3
SBDS SMC6 TBC1D12
SCN5A SMCHD1 TBL1X
SDHA SMO TBL1XR1
SDHAF2 SMURF1 TBP
SDHB SMURF2 TBX18
SDHC SMYD1 TBX2
SDHD SMYD2 TBX22
SET SMYD3 TBX3
SETBP1 SMYD4 TBXAS1
SETD1A SMYD5 TCEB1
SETD1B SOCS1 TCF12
SETD2 SOS1 TCF3
SETD3 SOS2 TCF4
SETD4 SOX1 TCF7
SETD5 SOX10 TCF7L1
SETD6 SOX17 TCF7L2
SETD7 SOX2 TCL1A
SETD8 SOX21 TCL1B
SETD9 SOX3 TEAD1
SETDB1 SOX8 TEAD2
SETDB2 SOX9 TEAD3
SETMAR SPI00 TEAD4
SF1 SP110 TEC
SF3A1 SP140 TEF
SF3B1 SP140L TEK
SFPQ SP3 TERC
SFRP1 SPDEF TERF1
SGK1 SPEN TERT
SGOL1 SPI1 TET1
SGOL2 SPIB TET2
SH2B3 SPIC TET3
SH2D1A SPOP TFE3
SH3GL1 SPOPL TFEF
SHB SPRED1 TFEC
SHC1 SPRED2 TFG
SHC2 SPRED3 TGFA
SHC3 SPRY2 TGFB1
SHC4 SPRY3 TGFB2
SHFM1 SRC TGFBF1
SHH SRGAP3 TGFBF2
SHOC2 SRMS THPO
SKI SRSF2 TIE1
SKIL SS18 TINF2
SKOR1 SS18L1 TLK1
SKP2 SSTR1 TLK2
SLC15A2 SSTR2 TLR1
SLC19A1 SSTR3 TLR10
SLC22A1 SSTR4 TLR2
SLC22A2 SSTR5 TLR4
SLC22A3 SSX1 TLR5
SLC22A6 SSX2 TLR6
SLC26A3 SSX3 TLR7
SLC47A1 SSX4 TLR8
SLC47A2 STAG1 TLR9
SLC6A3 STAG2 TLX1
SLC6A4 STARD3 TLX2
SLCO1A2 STAT1 TLX3
SLCO1B1 STAT2 TMC6
SLCO1B3 STAT3 TMC8
SLCO2B1 STAT4 TMEM127
SLIT2 STAT5A TMEM43
SLX4 STAT5B Tmprss2
SMAD1 STAT6 TNFAIP3
SMAD2 STK11 TNFRSF14
SMAD3 STK19 TNFRSF17
SMAD4 STK3 TNK1
SMAD5 STK36 TNK2
SMAD6 STK4 TNKS
SMAD7 STYK1 TNKS2
SMAD9 SUFU TNN13
SMARCA1 SULT1A1 TNNT2
SMARCA2 SUV39H1 TOP1
SMARCA4 SUV39H2 TOP2A
SMARCA5 SUV420H1 TOP2B
SMARCB1 SUV420H2 TP53
SMARCC1 SUZ12 TP53BP1
SMARCD1 SYK TP63
SMARCD2 SYNE1 TPM1
SMARCD3 TAF1 TPMT
SMARCE1 TAF15 TPTE
SMC1A TAF1L TPTE2
SMC1B TAL1 TRAF1
SMC2 TAL2 TRAF2
SMC3 TAOK1 TRAF3

Genes U-Z

U2AF1 ZC3H12A
U2AF2 ZC3H12D
UBE2D1 ZC3H7B
UBE2D2 ZCCHC7
UBE2D3 ZEB2
UBE2D4 ZFH3
UBE4A ZMYX3
UBR5 ZMYND11
UGT1A1 ZMYND8
UGT1A4 ZNF217
UHRF1 ZNF384
UHRF2 ZNF423
USB1 ZNF444
USP9X ZNF471
USP9Y ZNF521
UTY ZNF607
VAV1 ZNF639
VAV2 ZNF668
VAV3 ZNF703
VDR ZNF704
VEGFA ZNF750
VEGFB ZNFR3
VEGFC ZRSR2
VGLL1
VGLL2
VGLL3
VGLL4
VHL
VHLL
VKORC1
VTCN1
WAPL
WAS
WASL
WHSC1
WHSC1L1
WIF1
WISP1
WNK1
WNK2
WNK3
WNK4
WNT1
WNT10A
WNT10B
WNT11
WNT16
WNT2
WNT2B
WNT3
WNT3A
WNT4
WNT5A
WNT5B
WNT6
WNT7A
WNT7B
WNT8A
WNT8B
WNT9A
WNT9B
WRN
WT1
WWTR1
XBP1
XIAP
XIRP2
XPA
XPC
XPO1
XRCC2
YAP1
YEATS4
YES1
YWHAB
YWHAE
YWHAA
YWHAQ
YWHAZ
YY1
ZAP70
ZBTB16
ZBTB20
ZBTB33
ZBTB5
ZBTB7B

*In addition to reporting on somatic variants, Tempus reports on a limited set of inherited variants within the specified genes. These genes are selected based on recommendations from the American College of Medical Genetics (ACMG). Patients always have the option to opt out of receiving this information.