Personalis®

ACE CancerPlus Test

Increasingly, oncologists and pathologists are utilizing information on genomic alterations in solid tumors, such as lung, colon, breast, skin, and prostate cancers, to help guide and optimize therapeutic options for patients. The Personalis ACE CancerPlus Test provides clinicians a comprehensive and accurate next generation sequencing based testing solution for solid tumors.

Clinical Reports for Today, Data for the Future

Personalis ACE CancerPlus Test is a comprehensive genomic testing solution that provides physicians a clinical report on the genetic alterations found in cancer genes of medical importance. We use our leading ACE cancer platform to provide high accuracy, clinical grade next generation sequencing and analysis to identify base substitutions, insertions/deletions, copy number alterations and gene fusions.

Test results are provided to clinicians in hard copy and PDF format. The ACE CancerPlus Test report describes clinically important genomic alterations and potentially relevant therapies and clinical trials.

For patients who are consented under research protocol, Personalis can, at the same time, provide genomic alterations and expression data for over 1400 cancer genes and over 200 miRNA genes (listed on second page).

What Makes Our Test Unique

The Personalis ACE CancerPlus Test goes beyond typical cancer genomics tests in a few key areas:

- Proprietary methods for improving sequencing coverage in traditionally difficult to sequence regions typically missed or excluded from other cancer panel tests.
- Analysis of DNA and RNA from the same sample to enable robust identification of gene fusions over a broad number of genes.
- The over 1400 genes and 200 miRNA genes assayed by our test enables focused clinical reporting on 181 genes, while providing broad DNA and RNA data for research protocols vital for targeted therapy, immuno-oncology, and neoantigen research.

ACE CancerPlus Performance Specifications		
Requisition Required	Yes	
Specimen Types	FFPE, Fresh Frozen, ≥20% tumor content	
Regions Analyzed	Coding regions of 181 genes	
Type of Sequencing	DNA and RNA using Illumina NGS	
Typical Median Depth	>500x	
Turnaround Time	~3 weeks	
Specifications		
Sensitivity	Base Substitutions	(AF* ≥ 5%) >99%
	Indels	(AF ≥ 10%) >99%
	Copy Number Alterations	96% for tumor content ≥30%
	Gene Fusions	>95%
Specificity (PPV**)	Base Substitutions	(AF ≥ 5%) 99%
	Indels	(AF ≥ 10%) >99%

*AF = Allele Fraction

**PPV = Positive Predictive Value

Cancer Genes of Clinical Importance Analyzed for Base Substitutions, Indels, and Gene Fusions				
ABL1	CEBPA	HIF1A	MYC	RET
AKT1	CHEK1	HRAS	MYCN	RHEB
AKT2	CREBBP	IDH1	MYD88	RHOA
AKT3	CRLF2	IDH2	MYH11	RIT1
ALK	CRTC1	IGF1R	NF1	ROS1
APC	CSF1R	IL6R	NF2	RPN1
AR	CTNNB1	JAK1	NFE2L2	RUNX1
ARAF	DDR2	JAK2	NFKBIA	RUNX1T1
ARID1A	DEK	JAK3	NKX2-1	SF3B1
ASXL1	DNMT3A	KDR	NOTCH1	SMAD2
ATM	EGFR	KIF5B	NOTCH2	SMAD4
ATR	EPHB4	KIT	NPM1	SMARCA4
AURKA	ERBB2	KMT2A	NRAS	SMO
AURKB	ERBB3	KRAS	NTRK1	SRC
AURKC	ERBB4	LYN	NTRK2	SRSF2
BAP1	ERG	MAP2K1	NTRK3	STAG2
BCL2	ERRFI1	MAP2K2	NUP214	STK11
BCOR	ESR1	MAP2K4	PDCD1	SYK
BCR	ETV1	MAP3K1	PDGFRA	TERT
BRAF	ETV4	MAPK1	PDGFRB	TET2
BRCA1	ETV5	MAPK3	PGR	TGFBR1
BRCA2	ETV6	MCL1	PIK3CA	TMPRSS2
BTK	EWSR1	MDM2	PIK3CB	TNFSF13B
CBFB	EZH2	MDM4	PIK3CD	TP53
CCND1	FBXW7	MECOM	PIK3CG	TSC1
CCND2	FGFR1	MED12	PIK3R1	TSC2
CCND3	FGFR2	MEN1	PML	U2AF1
CCNE1	FGFR3	MET	PRKCB	VEGFA
CDH1	FGFR4	MITF	PTCH1	VEGFB
CDK1	FLCN	MKL1	PTEN	VHL
CDK2	FLT1	MLH1	PTPN11	WT1
CDK4	FLT3	MLLT10	RAB35	XPO1
CDK6	FLT4	MLLT3	RAD21	ZRSR2
CDKN1A	FOXO1	MPL	RAF1	
CDKN1B	GNA11	MSH2	RARA	
CDKN2A	GNAQ	MSH6	RB1	
CDKN2B	GNAS	MTOR	RBM15	

41 Cancer Genes Analyzed for Copy Number Alterations				
ABL1	CDK4	FGFR3	MET	PDGFRA
AKT2	CDKN2A	FGFR4	MITF	PIK3CA
AKT3	CDKN2B	JAK2	MLLT3	PTEN
ALK	EGFR	KIT	MSH2	RAD21
AURKA	ERBB2	KRAS	MYC	RB1
BCR	ERBB3	MAPK1	NKX2-1	RET
CCNE1	FGFR1	MCL1	NTRK1	ROS1
CDK1	FGFR2	MDM2	NUP214	SMAD4
				TERT

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Personalis®
Pioneering Genome-Guided Medicine

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ACE CancerPlus Test with Research Data

>1400 Cancer Related Genes and >200 miRNA Assayed by ACE CancerPlus for Research Reporting for Base Substitutions, Indels, CNAs, and Gene Fusions

AARS	AARS2	ABCB1	ABCB11	ABI1	ABL1	ABL2	ABO	ACE	ACKR3	ACO1	ACSL3	ACSL6	ACTB	ACTG1	ACTL6A	ACTL6B	ACVR1B	ACVR2A	ACVR2B
ADAM10	ADAMTS20	ADCY1	ADH1A	ADH1B	ADH1C	ADNP	ADORA2A	ADRB1	ADRB2	AFF1	AFF3	AFF4	AHCTF1	AHCYL2	AHDC1	AHNAK	AHNAK2	AHR	AIP
AJUBA	AK9	AKAP9	AKT1	AKT2	AKT3	ALDH1A1	ALDH2	ALK	ALKBH6	ALOX5	ALPK2	AMER1	AMPD1	AMPH	ANAPC1	ANK3	ANKRD11	ANKRD12	ANKRD6
ANXA6	APAF1	APC	APH1A	APOL2	AR	ARAF	ARF6	ARFGEF2	ARFRP1	ARHGAP26	ARHGAP32	ARHGAP35	ARHGEF12	ARHGEF6	ARID1A	ARID1B	ARID2	ARID5B	ARNT
ASCL1	ASMTL	ASPM	ASPSCR1	ASXL1	ASXL2	ATF1	ATF2	ATF4	ATF7IP	ATG13	ATIC	ATM	ATP5A1	ATP5B	ATR	ATRX	ATXN7	AURKA	AURKB
AURKC	AXIN1	AXIN2	AXL	AZGP1	B2M	B4GALT3	BAD	BAG6	BAI3	BAP1	BARD1	BAX	BAZ1B	BAZ2A	BCAS3	BCAS4	BCL10	BCL11A	BCL11B
BCL2	BCL2A1	BCL2L1	BCL2L2	BCL3	BCL6	BCL7A	BCL9	BCL9L	BCLAF1	BCOR	BCORL1	BCR	BHMT2	BID	BIRC2	BIRC3	BIRC5	BLK	BLM
BLNK	BMP2	BMPR1A	BMX	BRAF	BRCA1	BRCA2	BRD2	BRD3	BRD4	BRE	BRIP1	BRSK1	BTG1	BTG2	BTK	BTLA	BUB1	BUB1B	BUB3
C11orf30	C15orf65	C2orf44	C3orf70	CAD	CAMTA1	CANT1	CAP2	CARD11	CARM1	CARS	CASC5	CASP3	CASP8	CAST	CBFA2T3	CBFB	CBL	CBLB	CBLC
CCAR1	CCDC120	CCDC6	CCNB1IP1	CCND1	CCND2	CCND3	CCNE1	CCNE2	CCNL1	CCT6B	CD1D	CD200	CD22	CD274	CD36	CD40	CD58	CD70	CD74
CD79A	CD79B	CDC27	CDC73	CDH1	CDH11	CDH2	CDH20	CDH5	CDK1	CDK11B	CDK12	CDK2	CDK4	CDK6	CDK8	CDKN1A	CDKN1B	CDKN1C	CDKN2A
CDKN2B	CDKN2C	CDX2	CEBPA	CEP170	CEP250	CEP57	CEP76	CFH	CHCHD7	CHD2	CHD3	CHD4	CHD7	CHD8	CHEK1	CHEK2	CHIC2	CHN1	CIC
CIITA	CKS1B	CLIP1	CLP1	CLTC	CLTCL1	CMPK1	CNBD1	CNBP	CNKSR1	CNOT1	CNOT3	CNTRL	COBLL1	COL18A1	COL1A1	COL2A1	COL5A1	COL5A3	COL7A1
COMT	COX6C	CPS1	CRBN	CREB1	CREB3L1	CREB3L2	CREBBP	CRIPAK	CRK	CRKL	CRLF2	CRTC1	CRTC3	CSDE1	CSF1	CSF1R	CSF3	CSF3R	CSK
CSMD3	CTCF	CTNNA1	CTNNB1	CTNND1	CTSZ	CTTN	CUL1	CUL3	CUL4B	CUX1	CXCL12	CXCR4	CYC1	CYLD	CYP1A2	CYP2A6	CYP2B6	CYP2C19	CYP2C8
CYP2C9	CYP2D6	CYP2E1	CYP2J2	CYP3A4	CYP3A5	CYP4F2	DAB2IP	DAXX	DCAF5	DCC	DCP1B	DDB2	DDIT3	DDR2	DDX10	DDX3X	DDX5	DDX6	DEK
DHX9	DIAPH1	DICER1	DIDO1	DIS3	DIS3L2	DKC1	DMD	DNAH12	DNER	DNM2	DNM3	DNMT1	DNMT3A	DOCK2	DOCK4	DOCK8	DOT1L	DPEP1	DPYD
DRD2	DST	DTX1	DUSP2	DUSP9	DUX4	DUX4L	DUX4L2	E2F1	EBF1	ECT2L	EED	EEF1A1	EGFR	EGR3	EIF2S2	EIF4A2	ELANE	ELF3	ELF4
ELK4	ELL	ELN	ELP2	EML4	EP300	EP400	EPB41L3	EPCAM	EPHA2	EPHA3	EPHA5	EPHA6	EPHA7	EPHB1	EPHB4	EPHB6	EPPK1	EPS15	ERBB2
ERBB2IP	ERBB3	ERBB4	ERC1	ERCC1	ERCC2	ERCC3	ERCC4	ERCC5	ERG	ERRFI1	ESR1	ETS1	ETV1	ETV4	ETV5	ETV6	EWSR1	EXOSC6	EXT1
EXT2	EZH1	EZH2	EZR	F5	FAF1	FAH	FAM129B	FAM166A	FAM175A	FAM175B	FAM46C	FANCA	FANCB	FANCC	FANCD2	FANCE	FANCF	FANCG	FANCI
FANCL	FANCM	FAS	FASLG	FAT1	FBN2	FBXO11	FBXO31	FBXW7	FCGR2B	FCHO2	FCRL4	FES	FEV	FGF1	FGF10	FGF14	FGF19	FGF23	FGF3
FGF4	FGF5	FGF6	FGFBP1	FGFR1	FGFR1OP	FGFR2	FGFR3	FGFR4	FH	FHIT	FIP1L1	FLCN	FLG	FLI1	FLNA	FLT1	FLT3	FLT4	FLYWCH1
FN1	FNBP1	FOS	FOSL2	FOXA1	FOXA2	FOXL2	FOXO1	FOXO3	FOXO4	FOXP1	FOXP4	FOXQ1	FRG1B	FRMD7	FRS2	FSTL3	FUBP1	FUS	FZR1
G3BP1	G6PD	GAB3	GABRA6	GADD45B	GAS7	GATA1	GATA2	GATA3	GATA4	GATA6	GBA	GDI1	GDNF	GID4	GIGYF2	GJB2	GLI1	GMPS	GNA11
GNA12	GNA13	GNAI1	GNAQ	GNAS	GNB1	GNL3L	GNPTAB	GOLGA5	GOPC	GOT1	GOT2	GPC3	GPHN	GPR124	GPS2	GRB2	GRIA3	GRIN2A	GRIN3A
GRM3	GRM8	GSK3B	GSTP1	GSTT1	GTF2H1	GTSE1	GUCY1A2	GUSB	H3F3A	H3F3B	H3F3C	HCAR1	HDAC1	HDAC4	HDAC7	HERC1	HERPUD1	HEY1	HFE
HGF	HHIP	HIF1A	HIP1	HIST1H1C	HIST1H1D	HIST1H1E	HIST1H2AC	HIST1H2AG	HIST1H2AL	HIST1H2AM	HIST1H2BA	HIST1H2BC	HIST1H2BD	HIST1H2BJ	HIST1H2BK	HIST1H2BO	HIST1H3B	HIST1H4E	HIST1H4I
HIVEP2	HLA-A	HLA-B	HLF	HMBS	HMGA1	HMGA2	HMGCR	HMGN2P46	HMGXB4	HNF1A	HNRNPA2B1	HOOK3	HOXA11	HOXA13	HOXA3	HOXA9	HOXB13	HOXC11	HOXC13
HOXD11	HOXD13	HRAS	HSD3B1	HSP90AA1	HSP90AB1	HSPA8	HUWE1	IARS2	ICK	ID3	IDH1	IDH2	IFNL3	IGF1R	IGF2	IGF2R	IGLL5	IK	IKBKB
IKBKE	IKBKG	IKZF1	IKZF2	IKZF3	IL2	IL21R	IL6R	IL6ST	IL7R	ING1	ING4	INHBA	INPP4A	INPP4B	INPP5D	INPPL1	INSR	INTS1	INTS12
IPO7	IRF1	IRF2	IRF4	IRF6	IRF8	IRS2	ITGA10	ITGA6	ITGA9	ITGB2	ITGB3	ITGB7	ITK	ITPKB	JAK1	JAK2	JAK3	JARID2	JAZF1
JMJD1C	JUN	KALRN	KAT6A	KAT6B	KCNH2	KCNJ11	KCNJ5	KDM2B	KDM4C	KDM5A	KDM5C	KDM6A	KDM6B	KDR	KDSR	KEAP1	KEL	KIAA0947	KIAA1109
KIAA1549	KIF20B	KIF5B	KIFC3	KIT	KLF4	KLF6	KLHL6	KLHL8	KLK2	KMT2A	KMT2B	KMT2C	KMT2D	KRAS	KTN1	L3MBTL1	LAMP1	LASP1	LCK
LCP1	LCTL	LEF1	LEPR	LHFP	LIFR	LMO1	LMO2	LPHN3	LPP	LRIG3	LRP1B	LRP6	LRRK2	LTBP1	LTF	LTK	LUC7L2	LUM	LYL1
LYN	LZTR1	MACF1	MAF	MAFB	MAGEA1	MAGED1	MAGI1	MAGI2	MALAT1	MALT1	MAML1	MAML2	MAOA	MAP1A	MAP1B	MAP2K1	MAP2K2	MAP2K4	MAP3K1
MAP3K14	MAP3K3	MAP3K4	MAP3K5	MAP3K6	MAP3K7	MAP4	MAP4K3	MAPK1	MAPK3	MAPK8	MAPK8IP1	MARCKSL1	MARK1	MARK4	MAST2	MATK	MAX	MBD1	MCL1
MCM2	MCM7	MDC1	MDM2	MDM4	MDN1	MDS2	MECOM	MED12	MED13	MED17	MED23	MEF2A	MEF2B	MEF2C	MEGF6	MEN1	MET	METTL14	MGA
MIB1	MICAL1	MICALCL	MIR100	MIR106A	MIR106B	MIR107	MIR10A	MIR10B	MIR1179	MIR122	MIR1247	MIR1258	MIR125A	MIR126	MIR1260B	MIR1266	MIR127	MIR1271	MIR1290
MIR1291	MIR1296	MIR1297	MIR130A	MIR130B	MIR132	MIR133A1	MIR133A2	MIR133B	MIR134	MIR135A1	MIR135A2	MIR135B	MIR136	MIR137	MIR139	MIR140	MIR141	MIR142	MIR143
MIR144	MIR145	MIR146A	MIR146B	MIR148A	MIR148B	MIR149	MIR150	MIR152	MIR154	MIR155	MIR15A	MIR15B	MIR16-1	MIR16-2	MIR17	MIR181A1	MIR181A2	MIR181B1	MIR181B2
MIR181C	MIR181D	MIR182	MIR183	MIR184	MIR185	MIR186	MIR18A	MIR18B	MIR190B	MIR191	MIR192	MIR193B	MIR195	MIR196A1	MIR196A2	MIR196B	MIR197	MIR198	MIR199B
MIR19A	MIR200A	MIR200B	MIR200C	MIR204	MIR205	MIR206	MIR20A	MIR20B	MIR21	MIR210	MIR211	MIR212	MIR214	MIR215	MIR216A	MIR216B	MIR217	MIR22	MIR221
MIR222	MIR223	MIR224	MIR23A	MIR23B	MIR25	MIR26B	MIR27A	MIR27B	MIR29A	MIR29B1	MIR29B2	MIR29C	MIR301A	MIR301B	MIR302B	MIR302F	MIR30A	MIR30B	MIR30C1
MIR30C2	MIR30D	MIR30E	MIR31	MIR32	MIR320A	MIR326	MIR328	MIR330	MIR335	MIR339	MIR33A	MIR340	MIR342	MIR345	MIR346	MIR34A	MIR34B	MIR34C	MIR363
MIR370	MIR372	MIR373	MIR374A	MIR374B	MIR375	MIR376C	MIR379	MIR381	MIR383	MIR411	MIR421	MIR422A	MIR423	MIR424	MIR425	MIR429	MIR432	MIR433	MIR4423
MIR449A	MIR449B	MIR452	MIR486	MIR492	MIR493	MIR494	MIR495	MIR497	MIR498	MIR501	MIR502	MIR503	MIR510	MIR511-1	MIR517A	MIR518B	MIR519D	MIR520C	MIR541
MIR545	MIR564	MIR573	MIR575	MIR601	MIR612	MIR613	MIR622	MIR625	MIR627	MIR630	MIR637	MIR638	MIR639	MIR650	MIR655	MIR656	MIR657	MIR675	MIR802
MIR874	MIR92B	MIR93	MIR95	MIR96	MIR98	MIR99A	MIR99B	MIRLET7A1	MIRLET7A2	MIRLET7A3	MIRLET7B	MIRLET7C	MIRLET7D	MIRLET7E	MIRLET7F1	MIRLET7F2	MIRLET7G	MIRLET7I	MITF
MKI67	MKL1	MKLN1	MLF1	MLH1	MLH3	MLLT1	MLLT10	MLLT11	MLLT3	MLLT4	MLLT6	MME	MMP2	MMP9	MN1	MNX1	MORC4	MPL	MPO
MRAS	MRE11A	MSH2	MSH3	MSH6	MSI2	MSN	MST1	MTAP	MTCP1	MTHFR	MTM1	MTOR	MTR	MTRR	MTTP	MUC1	MUC17	MUTYH	MVP
MXRA5	MYB	MYBBP1A	MYC	MYCBP2	MYCL	MYCN	MYD88	MYH11	MYH9	MYO18A	MYO1D	MYO9A	MYOCD	NAA15	NACA	NAT2	NAV1	NAV3	NBEA
NBN	NBPF1	NBPF10	NCKIPSD	NCOA1	NCOA2	NCOA3	NCOA4	NCOR1	NCOR2	NCSTN	NDRG1	NEB	NEDD4L	NEK1	NEK8	NEU1	NF1	NF2	NFE2L2
NFE2L3	NFIB	NFKB1	NFKB2	NFKBIA	NFKBIB	NGF	NGFR	NIN	NIPBL	NKX2-1	NLK	NLRP1	NLRP3	NMT2	NOD1	NONO	NOTCH1	NOTCH2	NOTCH3
NOTCH4	NPM1	NQO1	NR1H2	NR1I2	NR2C2	NR3C1	NR4A2	NR4A3	NRAS	NRG1	NSD1	NT5C2	NTN4	NTRK1	NTRK2	NTRK3	NUMA1	NUMB	NUP210L
NUP214	NUP93	NUP98	NUTM1	NUTM2A	NUTM2B	ODAM	OLIG2	OMA1	OMD	OR4A16	OR52N1	OTUD7A	P2RY1	P2RY12	P2RY8	P4HB	PABPC1	PABPC4	PAFAH1B2
PAG1	PAK3	PALB2	PALLD	PAPD5	PARK2	PARP1	PASK	PATZ1	PAX3	PAX5	PAX7	PAX8	PBRM1	PBX1	PC	PCBP1	PCLO	PCM1	PCSK7
PDAP1	PDCD1	PDCD11	PDCD1LG2	PDCD2L	PDE4DIP	PDGFA	PDGFB	PDGFRA	PDGFRB	PDK1	PDS5A	PDSS2	PER1	PGAP3	PGR	PHF6	PHLDA1	PHLPP2	PHOX2B
PICALM	PIK3C2B	PIK3CA	PIK3CB	PIK3CD	PIK3CG	PIK3R1	PIK3R2	PIK3R3	PIM1	PIP5K1A	PKHD1	PLAG1	PLCG1	PLCG2	PLEC	PLEKHG1	PLEKHG5	PLXNB2	PML
PMS1	PMS2	POLD1	POLE	POLH	POLQ	POT1	POTEF	POU2AF1	POU2F2	POU5F1	PPARG	PPARGC1A	PPFIA4	PPM1D	PPP2R1A	PPP6C	PRB1	PRCC	PRDM1
PRDM16	PRDM2	PREX2	PRF1	PRICKLE2	PRKAR1A	PRKCB	PRKCD	PRKCI	PRKDC	PRPF8	PRRC2A	PRRX1	PRSS1	PRSS8	PRX	PSEN1	PSIP1	PSMD11	PSME3
PTCH1	PTCH2	PTEN	PTGIS	PTGS2	PTPN11	PTPN13	PTPN2	PTPN6	PTPRC	PTPRD	PTPRO	PTPRT	PWP1	QKI	RAB11FIP5	RAB35	RAB40A	RABEP1	RAC1
RAD21	RAD50	RAD51	RAD51B	RAD51C	RAD51D	RAF1	RAG1	RALGAPA1	RALGDS	RANBP17	RANBP2	RANBP3	RANGAP1	RAP1GDS1	RARA	RASA1	RASGEF1A	RB1	RBFOX2
RBM10	RBM15	RBMX	RBX1	RCC1	RECQL4	REL	RELB	RELN	RET	RGS4	RHBDF2	RHD	RHEB	RHOA	RHOH	RICTOR	RIF1	RIPK1	RIT1
RMI2	RMRP	RNASEL	RNF111	RNF2	RNF213	RNF43	ROS1	RPGR	RPL10	RPL22	RPL5	RPN1	RPP38	RPS15	RPS2	RPS6KA2	RPSAP58	RPTOR	RRM1
RSBN1L	RSRC1	RUNX1	RUNX1T1	RUNX2	RXRA	RYR1	S1PR2	SACS	SAMD9	SBDS	SCN5A	SDC4	SDHA	SDHAF2	SDHB	SDHC	SDHD	SEC23B	SELP
SEPT12	SEPT5	SEPT6	SEPT9	SERP2	SERPINA1	SERPINB13	SET	SETBP1	SETD2	SETDB1	SETX	SF3A1	SF3B1	SFPQ	SGK1	SH2B3	SH2D1A	SH3GL1	SH3PXD2A
SHISA2	SIN3A	SIRT4	SKP2	SLC19A1	SLC1A3	SLC22A1	SLC25A10	SLC25A13	SLC26A3	SLC34A2	SLC3A2	SLC44A3	SLC44A4	SLC45A3	SLC4A5	SLCO1B1	SLIT2	SLX4	SMAD2
SMAD3	SMAD4	SMARCA1	SMARCA2	SMARCA4	SMARCAD1	SMARCB1	SMARCC1	SMARCC2	SMARCD1	SMARCD2	SMARCD3	SMARCE1	SMC1A	SMC3	SMC4	SMCHD1	SMO	SMUG1	SMYD4
SNCAIP	SNX25	SNX29	SOCS1	SOCS2	SOCS3	SOCS5	SOS1	SOX10	SOX11	SOX17	SOX2	SOX4	SOX9	SP1	SPATA6	SPECC1	SPEG	SPEN	SPOP
SPTA1	SPTAN1	SRC	SRCAP	SRGAP3	SRRM2	SRSF2	SRSF3	SRY	SS18	SS18L1	SSX1	SSX2	SSX2IP	SSX4	STAG2	STAT1	STAT2	STAT3	STAT4
STAT5A	STAT5B	STAT6	STIL	STIP1	STK11	STK19	STK36	STL	STX2	SUFU	SULF2	SULT1A1	SUZ12	SVIL	SYK	SYNE1	TAB2	TAB3	TAF1
TAF15	TAF1L	TAL1	TAL2	TANC2	TAP1	TBC1D12	TBL1XR1	TBX22	TBX3	TCEA1	TCEB1	TCF12	TCF3	TCF7	TCF7L1	TCF7L2	TCL1A	TCL6	TCP11L2
TDRD10	TEC	TERC	TERT	TET1	TET2	TFDP1	TFE3	TFEB	TFG	TFPT	TFRC	TGFB1	TGFB2	TGFB3	TGFBR1	TGFBR2	TGIF1	TGM7	TGOLN2
THBS1	THRAP3	TICAM1	TIMM17A	TIMP3	TJP2	TLL2	TLR2	TLR4	TLX1	TLX3	TMEM127	TMEM30A	TMPRSS2	TMSB4XP8	TNF	TNFAIP3	TNFRSF10C	TNFRSF11A	TNFRSF13B
TNFRSF13C	TNFRSF14	TNFRSF17	TNFSF13B	TNK2	TNKS1BP1	TNKS2	TNPO1	TOM1	TOP1	TOP2A	TOP3A	TOX	TP53	TP53BP1	TP63	TPM1	TPM3	TPM4	TPMT
TPR	TPX2	TRAF1	TRAF2	TRAF3	TRAF4	TRAF5	TRAF6	TRAF7	TRIM23	TRIM24	TRIM27	TRIM33	TRIM37	TRIM7	TRIO	TRIP11	TRRAP	TSC1	TSC2
TSHR	TSHZ2	TSHZ3	TTC18	TTK	TTL	TTLL9	TUBA1A	TUSC3	TXK	TXNDC8	TXNIP	TYK2	TYMS	U2AF1	U2AF2	UBE2Z	UBE4A	UBR5	UGT1A1
UHRF1BP1L	UROD	USP28	USP32	USP6	USP9X	UTP14A	VDR	VEGFA	VEGFB	VEGFC	VEZF1	VEZT	VHL	VKORC1	VMP1	VRK2	VTI1A	WAS	WASF3
WDR90	WHSC1	WHSC1L1	WIF1	WISP3	WNT1	WNT10B	WNT11	WNT2	WNT2B	WNT3	WNT4	WNT5A	WNT6	WNT7A	WNT7B	WNT8A	WNT8B	WNT9A	WNT9B
WRN	WT1	WWTR1	XBP1	XIRP2	XKR3	XPA	XPC	XPO1	XRCC2	YWHAE	YY1AP1	ZBTB16	ZBTB2	ZEB2	ZFHX3	ZFP36L1	ZFP36L2	ZMYM2	ZMYM3
ZMYM4	ZMYND8	ZNF132	ZNF180	ZNF217	ZNF24	ZNF300	ZNF331	ZNF384	ZNF451	ZNF471	ZNF483	ZNF521	ZNF620	ZNF703	ZNF750	ZNF814	ZNF844	ZNF91	ZRANB3
ZRSR2	ZYG11B																		