

Table S1 The 616 gene list

ABCB1	ATRX	BTK	CDK6	CYP2C8	EPAS1	FAM58A (CCNQ)	FOXA1	H3F3C	ID3
ABCC4	AURKA	FANCA	CDK8	CYP2D6	EPCAM	C11orf30 (EMSY)	FOXL2	HAS3	IDH1
ABCC6	AURKB	C8orf34	CDKN1A	CYP3A5	EPHA3	FANCC	FOXO1	HDAC1	IDH2
ABL1	AXIN1	CALR	CDKN1B	CYP4B1	EPHA5	FANCD2	FOXP1	HGF	IFNGR1
ABL2	AXIN2	CAPG	CDKN2A	CYSLTR2	EPHA7	FANCE	FRS2	HIST1H1C	IGF1
ACTG1	AXL	CARD11	CDKN2B	DAXX	EPHB1	FANCF	FUBP1	HIST1H2BD	IGF1R
ACVR1	B2M	CARM1	CDKN2C	DCBLD1	EPHB4	FANCG	FYN	HIST1H3A	IGF2
ACVR1B	BABAM1	CASP7	CEBPA	DCK	ERBB2	FANCL	GABRA6	HIST1H3B	IKBKE
AGO2	BAP1	CASP8	CENPA	DCUN1D1	ERBB3	FAS	GATA1	HIST1H3C	IKZF1
AKT1	BARD1	CBFB	CHD2	DDR1	ERBB4	FAT1	GATA2	HIST1H3D	IL10
AKT2	BBC3	CBL	CHD4	DDR2	ERCC1	FBXW7	GATA3	HIST1H3E	IL7R
AKT3	BCL10	CBR3	CHEK1	DICER1	ERCC2	FGD4	GATA4	HIST1H3F	INHA
ALK	BCL2	CCND1	CHEK2	DIS3	ERCC3	FGF10	GATA6	HIST1H3G	INHBA
ALOX12B	BCL2L1	CCND2	CIC	DNAJB1	ERCC4	FGF12	GGH	HIST1H3H	INPP4A
Amel	BCL2L11	CCND3	CREBBP	DNMT1	ERCC5	GID4 (C17orf39)	FGF14	HIST1H3I	INPP4B
FGF19	BCL2L2	CCNE1	CRKL	DNMT3A	ERF	AMER1 (FAM123B)	GLI1	HIST1H3J	INPPL1
ANKRD11	BCL6	CD22	CRLF2	DNMT3B	ERG	FGF23	GNA11	HIST2H3C	INSR
APC	BCOR	FGF3	CSDE1	DOT1L	ERRFI1	CD274 (PD-L1)	GNA13	HIST2H3D	IRF2
AR	BCORL1	CD276	CSF1R	DPYD	ESR1	FGF4	GNAQ	HIST3H3	IRF4
ARAF	BCR	CD3EAP	CSF3R	DROSHA	ETV1	FGF6	GNAS	HLA-A	IRS1
ARFRP1	BIRC3	CD70	CTCF	DUSP4	ETV4	GPR124 (ADGRA2)	FGFR1	HLA-B	IRS2
ARID1A	BLM	CD74	CTLA4	E2F3	ETV5	FGFR2	GPS2	HLA-C	JAK1
ARID1B	BMPR1A	CD79A	CTNNA1	EED	ETV6	FGFR3	GREM1	HLA-DQB1	JAK2
ARID2	BRAF	CD79B	CTNNA1	EGFL7	EWSR1	FGFR4	GRIN2A	HLA-DRB1	JAK3
ARID5B	BRCA1	CDA	CUL3	EGFR	EXO1	FH	GRM3	HNF1A	JUN
ASXL1	BRCA2	CDC42	CUL4A	EIF1AX	EZH1	KAT6A (MYST3)	GSK3B	HOXB13	FLCN
ASXL2	BRD4	CDC73	CXCR4	EIF4A2	EZH2	FLT1	GSTA1	HRAS	KDM5A
ATM	BRIP1	CDH1	CYLD	EIF4E	EZR	FLT3	GSTP1	HSD3B1	KDM5C
ATP7A	BTG1	CDK12	CYP17A1	ELF3	FLT4	FAM175A (ABRAXAS1)	H3F3A	HSP90AA1	KDM6A
ATR	BTG2	CDK4	CYP19A1	EP300	FAM46C	FOLR3	H3F3B	ICOSLG	KDR
WWTR1	XIAP	XPC	XPO1	XRCC1	XRCC2	YAP1	YES1	ZBTB2	ZFHX3
KEAP1	MAPKAP1	MYC	NUF2	PIK3R1	PTPRD	PARK2 (PRKN)	SH2B3	SPOP	TIPARP
KEL	MAX	RNF43	NUP93	PIK3R2	PTPRO	MYCL (MYCL1)	SH2D1A	SPRED1	TMEM127
KIT	MCL1	MYCN	NUTM1	PIK3R3	PTPRS	TNFRSF14	SHOC2	SPTA1	TMPRSS2
KLF4	MDC1	MYD88	OPRM1	PIM1	PTPRT	RPS6KA4	SHQ1	SRC	TNFAIP3
KLHL6	MDM2	MYOD1	P2RY8	PLCG2	QKI	RPS6KB2	SLC10A2	SRSF2	ROS1
KMT2A	MDM4	NAT2	PAK1	PLK2	RAB35	RPTOR	SLC19A1	STAG2	TOP1
RRAGC	MED12	NBN	PAK3	PMAIP1	RAC1	KMT2A (MLL)	SLC29A1	STAT3	TOP2A
KMT2B	MEF2B	NCOA3	RRAS	PMS1	RAC2	PAK7 (PAK5)	SLC34A2	STAT4	TP53
RRAS2	MEN1	NCOR1	PALB2	PMS2	RAD21	KMT2C (MLL3)	SLCO1B1	STAT5A	TP53BP1
RRM1	MERTK	NEGR1	RIT1	PNRC1	RAD50	KMT2D (MLL2)	SLCO1B3	STAT5B	TP63

KNSTRN	MET	NF1	PARP1	POLD1	RAD51	RSPO2	SLIT2	STK11	TRAF2
KRAS	MGA	NF2	PARP2	POLE	RAD51B	RTEL1	SLX4	STK19	TRAF7
LATS1	MITF	NFE2L2	PARP3	PPARG	RAD51C	RUNX1	SMAD2	STK40	TSC1
LATS2	MKNK1	NFKBIA	PAX5	PPM1D	RAD51D	RUNX1T1	SMAD3	SUFU	TSC2
LMO1	MLH1	NKX2-1	PBRM1	PPP2R1A	RAD52	RXRA	SMAD4	SUZ12	TSHR
LRP1B	MPL	NKX3-1	PDCD1	PPP2R2A	RAD54L	RYBP	SMARCA4	SYK	TSPY1
LTK	SDHA	NOS3	SDC4	PPP4R2	RAF1	PDCD1LG2 (PD-L2)	SMARCB1	TAF1	TYMS
LYN	MSH2	NOTCH1	PDGFRA	PPP6C	RANBP2	MRE11A (MRE11)	SMARCD1	TAP1	TYRO3
LZTR1	MSH3	NOTCH2	PDGFRB	PRDM1	RARA	SDHAF2	SMO	TAP2	U2AF1
MAF	MSH6	NOTCH3	PDK1	PRDM14	RASA1	SDHB	SMYD3	TBX3	UBE2I
MAGI2	MSI1	NOTCH4	PDPK1	PREX2	RB1	TCEB1 (ELOC)	SNCAIP	SDHC	UGT1A3
MALT1	MSI2	NPM1	PGR	PRKAR1A	RBM10	SDHD	SOCS1	TCF3	UMPS
SEMA3C	MST1	NQO1	PHOX2B	PRKCI	RECQL	MAP2K1 (MEK1)	SOD2	TCF7L2	UPF1
SESN1	MST1R	NRAS	PIK3C2B	PRKD1	RECQL4	MAP2K2 (MEK2)	SOS1	TEK	VEGFA
MAP2K4	MTAP	NSD1	PIK3C2G	PRKDC	REL	HIST1H3F	SOX10	TERC	VHL
MAP3K1	MTHFR	NT5C2	PIK3C3	PRSS8	RET	TERT (Promoter included)	SOX17	SESN3	VTCN1
MAP3K13	MTOR	NTHL1	PIK3CA	PTCH1	SETD2	RFWD2 (COP1)	SOX2	TET1	SGK1
MAP3K14	MTR	NTRK1	PIK3CB	PTEN	RHEB	SETD8 (KMT5A)	SOX9	TET2	SF3B1
MAPK1	MUTYH	NTRK2	PIK3CD	PTP4A1	RHOA	WHSC1L1 (NSD3)	SPEN	TGFBR1	WISP3
MAPK3	MYB	NTRK3	PIK3CG	PTPN11	RICTOR	WHSC1 (NSD2)	SPG7	TGFBR2	WT1
ZNF217	ZNF703	GATA3	CTNNA1	CSF1R	SESN2				

Table S2 The clinical information of the 220 patients

ID	age	sex	smoking	stage	pathology	KRAS mutation	best efficacy	ID	age	sex	smoking	stage	pathology	KRAS mutation	best efficacy
UAGBN7WY34	79	Female	NA	IV	Lung adenocarcinoma	G12D	SD	PM00G19BN0479	52	male	yes	IV	Lung adenocarcinoma	WT	SD
UAGBN8WY46	54	male	yes	IV	Sarcomatoid carcinoma	G12F	PR	UAGBN20716	81	male	yes	III	squamous cell carcinoma	WT	SD
UAGBN6GK50	51	male	yes	III	Lung adenocarcinoma	G13D	PR	PM00G19BN0030	76	male	yes	III	squamous cell carcinoma	WT	PR
UAGBN9Y753	58	male	yes	IV	Lung adenocarcinoma	G12C	PR	UAGBN53874	71	male	yes	IV	Lung adenocarcinoma	WT	PD
UAGBN9Y876	58	male	yes	IV	Lung adenocarcinoma	G12C	PR	PM00G18BN0200	63	male	NA	I	Lung adenocarcinoma	WT	SD
UAGBN9Y881	66	male	NA	IV	Lung adenocarcinoma	G12C	PR	UAGBN0A995	80	male	NA	III	squamous cell carcinoma	WT	PR
UAGBN8X773	67	male	yes	IV	Lung adenocarcinoma	G12V	PR	UAGBN20709	60	Female	NA	IV	Lung adenocarcinoma	WT	PR
UAGBN0E757	72	male	yes	IV	Lung adenocarcinoma	G12D	PR	UAGBN9Y664	49	male	NA	III	Lung adenocarcinoma	WT	SD
7	62	male	yes	III	Lung adenocarcinoma	G12C	PR	UAGBN9Y797	49	male	NA	III	squamous cell carcinoma	WT	PD
PM00G19BN0630	72	Female	NA	IV	Lung adenocarcinoma	G12V	PD	UAGBN9Y877	56	Female	NA	IV	Lung adenocarcinoma	WT	PR
PM00G19BN0368	74	male	yes	IV	Lung adenocarcinoma	G12C	PR	UAGBN9Y885	65	Female	NA	IV	Lung adenocarcinoma	WT	SD
PM00G18BN0210	62	male	yes	IV	Lung adenocarcinoma	G12C	PR	UAGBN8X768	56	Female	NA	IV	Lung adenocarcinoma	WT	SD
UAGBN5GK86	66	Female	NA	IV	Lung adenocarcinoma	G12D	PD	PM00G18BN0090	65	male	yes	IV	squamous cell carcinoma	WT	SD
UAGBN6GK01	67	male	yes	IV	Lung adenocarcinoma	G12V	PR	UAGBN9Y741	70	male	yes	IV	squamous cell carcinoma	WT	PR
UAGBN8X799	72	male	yes	IV	Lung adenocarcinoma	G12V	PD	PM00G19BN0363	73	male	NA	II	Lung adenocarcinoma	WT	PD
UAGBN8X796	56	Female	NA	IV	Lung adenocarcinoma	G12D	PD	PM00G19BN0429	64	male	yes	IV	Sarcomatoid carcinoma	WT	SD
UAGBN2M034	74	male	NA	III	Lung adenocarcinoma	G12C	PR	UAGBN7GK97	66	Female	yes	III	Lung adenocarcinoma	WT	NA
UAGBN84789	54	Female	NA	IV	Lung adenocarcinoma	G12D	PR	UAGBN9Y734	58	male	yes	III	poorly differentiated carcinoma	WT	PR
UAGBN84759	43	male	yes	IV	squamous cell carcinoma	G12C	PD	PM00G19BN0301	56	male	NA	IV	Lung adenocarcinoma	WT	NA
UAGBN53872	52	male	yes	IV	Lung adenocarcinoma	G12C	PD	UAGBN20720	50	male	NA	IV	Lung adenocarcinoma	WT	NA
PM00G19BN0664	50	male	yes	III	Lung adenocarcinoma	G12V	SD	PM00G19BN0202	62	male	yes	III	squamous cell carcinoma	WT	PR
PM00G18BN0092	76	male	yes	IV	Lung adenocarcinoma	G13D	SD	UAGBN8X797	52	Female	NA	IV	Lung adenocarcinoma	WT	PR
PM00G19BN0145	71	Female	NA	II	Lung adenocarcinoma	G12C	PD	UAGBN8X784	58	male	yes	IV	Lung adenocarcinoma	WT	PR
UAGBN84764	60	male	yes	I	Lung adenocarcinoma	G12C	PR	UAGBN8X731	69	Female	NA	IV	neuroendocrine carcinoma	WT	PR
UAGBN7WY15	67	male	yes	IV	Lung adenocarcinoma	G12D	SD	UAGBN84757	52	Female	NA	IV	Lung adenocarcinoma	WT	PR
UAGBN6GK09	28	Female	NA	IV	Lung adenocarcinoma	G12V	PD	UAGBN67807	45	male	NA	IV	Lung adenocarcinoma	WT	PR
UAGBN6GK98	53	male	yes	IV	Lung adenocarcinoma	G12C	SD	UAGBN53902	58	Female	NA	IV	Lung adenocarcinoma	WT	PR
UAGBN7GK52	75	male	NA	IV	Lung adenocarcinoma	G12C	SD	UAGBN53849	52	male	yes	IV	Lung adenocarcinoma	WT	SD
UAGBN7GK67	73	male	yes	IV	Lung adenocarcinoma	G12C	SD	UAGBN20736	58	Female	NA	IV	Lung adenocarcinoma	WT	SD
UAGBN1W859	54	male	NA	IV	Lung adenocarcinoma	G12V	PR	UAGBN20739	48	male	NA	III	Lung adenocarcinoma	WT	PR
UAGBN1W854	58	male	yes	IV	neuroendocrine carcinoma	G12C	SD	PM00G19BN0551R	57	Female	NA	IV	Lung adenocarcinoma	WT	SD
UAGBN2M024	45	Female	NA	IV	poorly differentiated carcinoma	G12C	PR	PM00G19BN0571	78	Female	yes	IV	Lung adenocarcinoma	WT	PR
UAGBN2M049	69	male	NA	IV	Lung adenocarcinoma	G12D	SD	PM00G19BN0448	37	male	yes	IV	Lung adenocarcinoma	WT	PR
UAGBN2M072	83	Female	NA	III	Lung adenocarcinoma	G12D	PR	UAGBN67798	72	male	yes	IV	squamous cell carcinoma	WT	PR
UAGBN3H323	59	male	yes	IV	Lung adenocarcinoma	G12C, A146P	PR	PM00G19BN0032	69	male	NA	IV	squamous cell carcinoma	WT	PD
UAGBN3H316	31	male	yes	IV	Lung adenocarcinoma	G12C	PR	PM00G19BN0644	45	male	yes	III	neuroendocrine carcinoma	WT	PR
UAGBN3H058	62	male	yes	IV	Lung adenocarcinoma	G12D	PR	UAGBN9Y738	62	male	yes	IV	squamous cell carcinoma	WT	PD

UAGBN0E770	51	male	yes	IV	Lung adenocarcinoma	G12C	SD	UAGBN9Y882	63	male	yes	III	Lung adenocarcinoma	WT	SD
UAGBN84779	57	Female	NA	III	poorly differentiated carcinoma	G12D	SD	UAGBN8X785	51	Female	NA	III	Lung adenocarcinoma	WT	SD
UAGBN53888	26	Female	NA	IV	Lung adenocarcinoma	G12D	PD	UAGBN8X737	68	Female	NA	IV	Lung adenocarcinoma	WT	PR
UAGBN53895	54	Female	NA	IV	Lung adenocarcinoma	Q61R	PR	UAGBN3H314	48	male	yes	IV	Lung adenocarcinoma	WT	PR
UAGBN53851	71	Female	NA	IV	Lung adenocarcinoma	G12D	PD	UAGBN9Y855	54	Female	NA	IV	Lung adenocarcinoma	WT	SD
UAGBN20711	81	male	yes	IV	Lung adenocarcinoma	G12F	PR	UAGBN9Y718	68	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN20734	51	male	yes	IV	Lung adenocarcinoma	G12V	SD	UAGBN9Y740	79	Female	NA	IV	Lung adenocarcinoma	WT	SD
PM00G19BN0700	49	male	yes	IV	Lung adenocarcinoma	G12C	SD	UAGBN9Y754	48	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0473	55	male	yes	IV	Lung adenocarcinoma	G12V	PR	UAGBN9Y767	71	male	NA	III	Lung adenocarcinoma	WT	
PM00G19BN0183	63	male	yes	IV	Lung adenocarcinoma	G12V	SD	UAGBN9Y790	64	male	NA	0	Lung adenocarcinoma	WT	
PM00G19BN0111	50	Female	NA	II	Lung adenocarcinoma	G12D	PD	UAGBN9Y910	42	Female	NA	I	Lung adenocarcinoma	WT	
PM00G19BN0016	73	male	yes	IV	Lung adenocarcinoma	G12D	SD	UAGBN8X805	64	male	NA	II	Lung adenocarcinoma	WT	
PM00G18BN0138	65	male	NA	IV	Lung adenocarcinoma	G12C	PR	UAGBN8X774	66	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G18BN0030	62	male	yes	IV	Lung adenocarcinoma	G12C	SD	UAGBN8X770	55	Female	NA	0	Lung adenocarcinoma	WT	
PM00G18BN0083	66	Female	NA	IV	Lung adenocarcinoma	G12C	SD	UAGBN8X743	68	male	NA	I	Lung adenocarcinoma	WT	
PM00G19BN0043	76	male	yes	III	Lung adenocarcinoma	G12D	PR	UAGBN8X763	74	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN0A992	81	male	NA	IV	Lung adenocarcinoma	G12D	NA	UAGBN8X741	75	male	yes	III	Lung adenocarcinoma	WT	
PM00G18BN0074	79	male	yes	IV	Lung adenocarcinoma	G12C	NA	UAGBN8X738	38	male	yes	IV	Lung adenocarcinoma	WT	
UAGBN8WY78	61	Female	NA	IV	Lung adenocarcinoma	G12D	PR	UAGBN3H325	54	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN7WY03	69	male	yes	IV	Lung adenocarcinoma	G12C	NA	UAGBN67795	44	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN6GK62	55	male	yes	IV	Lung adenocarcinoma	G12C	NA	UAGBN67796	63	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN6GK70	77	male	yes	IV	Lung adenocarcinoma	G12C	NA	UAGBN67800	54	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN9Y751	83	male	yes	IV	Lung adenocarcinoma	G12A	PR	UAGBN67792	69	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN1W860	77	male	NA	IV	Lung adenocarcinoma	G12D	NA	UAGBN67801	45	male	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0490	53	Female	NA	II	Lung adenocarcinoma	G12C	SD	UAGBN53893	72	Female	NA	III	Lung adenocarcinoma	WT	
PM00G19BN0519	63	Female	NA	NA	Lung adenocarcinoma	G12V	SD	PM00G19BN0722	68	male	yes	IV	squamous cell carcinoma	WT	
PM00G19BN0386	73	male	yes	IV	Sarcomatoid carcinoma	G12C	PD	PM00G19BN0669	29	male	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0230	62	male	yes	II	Lung adenocarcinoma	G12D	PR	PM00G19BN0624	72	male	yes	IV	squamous cell carcinoma	WT	
UAGBN84790	62	male	yes	IV	Lung adenocarcinoma	G12C	NA	PM00G19BN0626	68	male	yes	IV	Lung adenocarcinoma	WT	
UAGBN84773	57	male	yes	IV	Lung adenocarcinoma	G12V	NA	PM00G19BN0596	55	male	yes	IV	Lung adenocarcinoma	WT	
UAGBN2M028	69	male	NA	IV	Lung adenocarcinoma	G12C,G12V	NA	PM00G19BN0528	39	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN67814	62	Female	NA	IV	squamous cell carcinoma	G12R	NA	PM00G19BN0541	57	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0150	54	male	NA	III	Lung adenocarcinoma	G12D	NA	PM00G19BN0474	42	male	NA	III	squamous cell carcinoma	WT	
UAGBN2M062	70	Female	NA		squamous cell carcinoma	G12A,A146T	NA	PM00G19BN0350	55	male	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0534	64	Female	NA	IV	Lung adenocarcinoma	G12V	NA	PM00G19BN0362	53	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0351	71	Female	NA	IV	Lung adenocarcinoma	G12D	NA	PM00G19BN0369	69	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0161	77	male	yes	IV	squamous cell carcinoma	Q61H	NA	PM00G19BN0302	65	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0133	72	male	yes	IV	Lung adenocarcinoma	G12A	NA	PM00G19BN0308	48	Female	NA	III	Lung adenocarcinoma	WT	
PM00G19BN0140	61	Female	NA	IV	Lung adenocarcinoma	G12D	NA	PM00G19BN0245	57	male	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0159	69	male	yes	IV	Lung adenocarcinoma	G12C	NA	PM00G19BN0160	56	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G18BN0187	70	Female	NA	IV	squamous cell carcinoma	G12R	NA	PM00G19BN0177	65	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN7WY07	69	male	yes	IV	Lung adenocarcinoma	G12C	NA	PM00G19BN0115	68	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN7WY37	76	male	yes	III	Lung adenocarcinoma	G12C	NA	PM00G19BN0069	37	male	yes	III	Lung adenocarcinoma	WT	

UAGBN7GK87	78	Female	NA	II	Lung adenocarcinoma	G12C	NA	UAGBN8X766	51	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN53847	65	male	yes	IV	Lung adenocarcinoma	Q61H	NA	UAGBN1W846	38	male	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0712	69	male	yes	IV	Lung adenocarcinoma	G12C	NA	UAGBN1W829	60	male	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0379	62	male	yes	IV	Lung adenocarcinoma	G12C	NA	UAGBN1W804	57	male	NA	IV	squamous cell carcinoma	WT	
UAGBN5GK63	74	male	yes	III	Lung adenocarcinoma	G12V	NA	UAGBN2M029	58	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN5GK71	81	Female	NA	IV	Lung adenocarcinoma	G12D	NA	UAGBN2M050	50	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN2M037	52	male	yes	IV	Lung adenocarcinoma	G12D	NA	UAGBN2M067	54	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN2M041	68	male	yes	IV	Lung adenocarcinoma	G12C	NA	UAGBN3H298	50	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN84891	48	Female	NA	IV	Lung adenocarcinoma	G12D	NA	UAGBN0E795	54	male	yes	II	Lung adenocarcinoma	WT	
UAGBN84902	41	Female	NA	IV	Lung adenocarcinoma	G12D	NA	UAGBN0E789	78	male	yes	IV	Lung adenocarcinoma	WT	
UAGBN1A023	60	male	NA	IV	Lung adenocarcinoma	G12D	NA	UAGBN0E783	74	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0250	81	male	NA	IV	Lung adenocarcinoma	G12V	NA	UAGBN0E782	77	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN20730	55	male	yes	IV	Lung adenocarcinoma	WT	PR	UAGBN0E773	45	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0622	53	male	yes	IV	Lung adenocarcinoma	WT	PR	UAGBN0E764	63	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0361	79	male	yes	III	Lung adenocarcinoma	WT	PR	UAGBN84890	66	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN84800	68	male	NA	IV	Lung adenocarcinoma	WT	SD	UAGBN84898	63	male	NA	IV	squamous cell carcinoma	WT	
UAGBN20718	65	male	yes	III	squamous cell carcinoma	WT	PD	UAGBN84903	39	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN20723	72	Female	NA	IV	Lung adenocarcinoma	WT	PD	UAGBN84900	48	Female	NA	III	Lung adenocarcinoma	WT	
UAGBN0E744	74	male	yes	IV	squamous cell carcinoma	WT	SD	UAGBN84911	50	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN84782	66	male	yes	III	Lung adenocarcinoma	WT	SD	UAGBN1A029	57	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN0E755	61	male	NA	IV	Lung adenocarcinoma	WT	PD	UAGBN1A013	52	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN53852	52	Female	NA	IV	NA	WT	PD	UAGBN1A002	54	Female	yes	IV	squamous cell carcinoma	WT	
PM00G19BN0110	63	male	yes	IV	squamous cell carcinoma	WT	SD	UAGBN84775	50	Female	NA	III	Lung adenocarcinoma	WT	
UAGBN20712	76	male	yes	IV	Lung adenocarcinoma	WT	PD	PM00G19BN0725	57	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN1A003	48	male	NA	IV	Lung adenocarcinoma	WT	SD	PM00G19BN0604	61	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN84781	59	male	yes	IV	Lung adenocarcinoma	WT	PR	PM00G19BN0559	49	Female	yes	IV	Lung adenocarcinoma	WT	
UAGBN1A001	66	male	yes	IV	Lung adenocarcinoma	WT	SD	PM00G19BN0428	51	Female	NA	IV	Lung adenocarcinoma	WT	
PM00G19BN0666	76	male	yes	IV	squamous cell carcinoma	WT	SD	PM00G19BN0344	50	male	NA	IV	Lung adenocarcinoma	WT	
UAGBN3H066	45	male	yes	IV	Lung adenocarcinoma	WT	PR	PM00G19BN0208	53	Female	NA	IV	Lung adenocarcinoma	WT	
UAGBN84909	55	male	NA	IV	Lung adenocarcinoma	WT	PD	PM00G19BN0113	62	Female	NA	IV	Lung adenocarcinoma	WT	

Table S3 The PFS and OS of KRAS-mutant patients and non-KRAS-mutant patients with immunotherapy.

ID	Class	Status	PFS	OS	ID	Class	Status	PFS	OS
UAGBN7WY34	KRAS_Mutation	1	90	270	UAGBN3H066	KRAS_WT	1	250	600
UAGBN8WY46	KRAS_Mutation	1	73	225	UAGBN84909	KRAS_WT	2	45	162
UAGBN6GK50	KRAS_Mutation	1	160	245	PM00G19BN0479	KRAS_WT	2	90	854
UAGBN9Y753	KRAS_Mutation	1	63	213	UAGBN20716	KRAS_WT	2	53	192
UAGBN9Y876	KRAS_Mutation	1	435	435	PM00G19BN0030	KRAS_WT	2	197	197
UAGBN9Y881	KRAS_Mutation	1	377	465	UAGBN53874	KRAS_WT	2	15	429
UAGBN8X773	KRAS_Mutation	1	427	502	PM00G18BN0200	KRAS_WT	2	133	474
UAGBN0E757	KRAS_Mutation	2	51	399	UAGBN0A995	KRAS_WT	1	137	686
UAGBN67815	KRAS_Mutation	1	230	750	UAGBN20709	KRAS_WT	1	417	797
PM00G19BN0368	KRAS_Mutation	1	360	1042	UAGBN9Y664	KRAS_WT	1	106	414
PM00G18BN0210	KRAS_Mutation	2	840	870	UAGBN9Y797	KRAS_WT	1	50	268
UAGBN5GK86	KRAS_Mutation	2	28	NA	UAGBN9Y877	KRAS_WT	1	120	230
UAGBN6GK01	KRAS_Mutation	1	720	1045	UAGBN9Y885	KRAS_WT	1	22	438
UAGBN8X799	KRAS_Mutation	1	43	NA	UAGBN8X768	KRAS_WT	1	170	495
UAGBN2M034	KRAS_Mutation	2	120	134	PM00G18BN0090	KRAS_WT	2	30	59
UAGBN84789	KRAS_Mutation	1	60	491	UAGBN9Y741	KRAS_WT	1	181	421
PM00G19BN0664	KRAS_Mutation	1	173	810	PM00G19BN0363	KRAS_WT	2	128	128
PM00G18BN0092	KRAS_Mutation	1	120	549	UAGBN7GK97	KRAS_WT	1	NA	120
PM00G19BN0145	KRAS_Mutation	2	30	600	UAGBN9Y734	KRAS_WT	1	NA	396
UAGBN84764	KRAS_Mutation	1	360	711	PM00G19BN0301	KRAS_WT	2	NA	NA
PM00G19BN0622	KRAS_WT	1	120	MA	UAGBN20720	KRAS_WT	NA	NA	NA
PM00G19BN0361	KRAS_WT	1	136	NA	PM00G19BN0202	KRAS_WT	2	NA	NA
UAGBN84800	KRAS_WT	1	70	NA	UAGBN20712	KRAS_WT	2	48	60
PM00G19BN0429	KRAS_WT	2	60	NA	UAGBN1A003	KRAS_WT	2	15	142
UAGBN20718	KRAS_WT	2	60	390	UAGBN84781	KRAS_WT	2	70	154
UAGBN20723	KRAS_WT	2	101	144	UAGBN1A001	KRAS_WT	1	107	691
UAGBN0E744	KRAS_WT	2	40	323	PM00G19BN0666	KRAS_WT	2	120	777
UAGBN84782	KRAS_WT	1	236	684	UAGBN53852	KRAS_WT	2	30	120
UAGBN0E755	KRAS_WT	2	44	75	PM00G19BN0110	KRAS_WT	2	210	420

Table S4 The PFS and OS of the patients with KRAS mutations with immunotherapy and chemotherapy

ID	Class	Status	PFS	OS	ID	Class	Status	PFS	OS
UAGBN7WY34	Immu	1	90	270	UAGBN3H323	Chemo	1	111	484
UAGBN8WY46	Immu	1	73	225	UAGBN3H316	Chemo	1	60	604
UAGBN6GK50	Immu	1	160	245	UAGBN3H058	Chemo	2	140	90
UAGBN9Y753	Immu	1	63	213	UAGBN0E770	Chemo	2	22	71
UAGBN9Y876	Immu	1	435	435	UAGBN53888	Chemo	2	21	58
UAGBN9Y881	Immu	1	377	465	UAGBN53895	Chemo	1	146	784
UAGBN8X773	Immu	1	427	502	UAGBN53851	Chemo	2	67	77
UAGBN0E757	Immu	2	51	399	UAGBN20734	Chemo	2	42	177
UAGBN67815	Immu	1	230	750	PM00G19BN0700	Chemo	1	176	863
PM00G19BN0368	Immu	1	360	1042	PM00G19BN0473	Chemo	2	183	311
PM00G18BN0210	Immu	2	840	870	PM00G19BN0111	Chemo	2	38	53
UAGBN5GK86	Immu	2	28		PM00G19BN0016	Chemo	2	40	81
UAGBN6GK01	Immu	1	720	1045	PM00G18BN0138	Chemo	2	420	450
UAGBN8X799	Immu	1	43		PM00G18BN0030	Chemo	2	217	340
UAGBN2M034	Immu	2	120	134	PM00G18BN0083	Chemo	2	170	
UAGBN84789	Immu	1	60	491	PM00G19BN0043	Chemo	2	210	
PM00G19BN0664	Immu	1	173	810	UAGBN8WY78	Chemo	1	510	
PM00G18BN0092	Immu	1	120	549	UAGBN7WY03	Chemo	1		180
PM00G19BN0145	Immu	2	30	600	UAGBN6GK62	Chemo	1		282
UAGBN84764	Immu	1	360	711	UAGBN6GK70	Chemo	2	1	139
UAGBN7WY15	Chemo	1	73	180	UAGBN1W860	Chemo	2		372
UAGBN6GK09	Chemo	1	27	268	PM00G19BN0490	Chemo	1		941
UAGBN6GK98	Chemo	1	23	333	PM00G19BN0519	Chemo	1		1000
UAGBN7GK52	Chemo	2	45	210	PM00G19BN0386	Chemo	2	24	
UAGBN7GK67	Chemo	1	165	354	PM00G19BN0230	Chemo	2	90	
UAGBN1W859	Chemo	1	120	499	UAGBN84790	Chemo	1	75	704
UAGBN1W854	Chemo	2	86	183	UAGBN2M028	Chemo	2		105
UAGBN2M024	Chemo	1	70	860	PM00G19BN0150	Chemo	1		
UAGBN2M049	Chemo	1	246	540	UAGBN2M062	Chemo	1		
UAGBN2M072	Chemo	1	245	241	UAGBN7WY07	Chemo	2		

Table S5 The PFS and OS of the patients with KRAS G12C mutations and non-KRAS G12C mutations with immunotherapy

ID	Class	Status	PFS	OS
UAGBN7WY34	KRAS_non_G12C	1	90	270
UAGBN8WY46	KRAS_non_G12C	1	73	225
UAGBN6GK50	KRAS_non_G12C	1	160	245
UAGBN9Y753	KRAS_G12C	1	63	213
UAGBN9Y876	KRAS_G12C	1	435	435
UAGBN9Y881	KRAS_G12C	1	377	465
UAGBN8X773	KRAS_non_G12C	1	427	502
UAGBN0E757	KRAS_non_G12C	2	51	399
UAGBN67815	KRAS_G12C	1	230	750
PM00G19BN0368	KRAS_G12C	1	360	1042
PM00G18BN0210	KRAS_G12C	2	840	870
UAGBN5GK86	KRAS_non_G12C	2	28	135
UAGBN6GK01	KRAS_non_G12C	1	720	1045
UAGBN8X799	KRAS_non_G12C	1	43	216
UAGBN2M034	KRAS_G12C	2	120	134
UAGBN84789	KRAS_non_G12C	1	60	491
PM00G19BN0664	KRAS_non_G12C	1	173	810
PM00G18BN0092	KRAS_non_G12C	1	120	549
PM00G19BN0145	KRAS_G12C	2	30	600
UAGBN84764	KRAS_G12C	1	360	711