

Supplementary

Table S1 Identified gene variants from 10-gene PCR detection

Gene	Exon(s)	Partner gene/exon (if applicable)	Variant type
<i>ALK</i>	Exon-20	EML4 Exon13	Fusion
	Exon-20	EML4 Exon20	Fusion
	Exon-20	EML4 Exon18	Fusion
	Exon-20	EML4 Exon2	Fusion
	Exon-20	EML4 Exon6 ins 33	Insertion
<i>ROS1</i>	Exon-32/34	SLC34A2 Exon4	Fusion
	Exon-32	EZR Exon10	Fusion
	Exon-34	CD74 Exon6	Fusion
	Exon-32	SLC34A2 Exon4	Fusion
	Exon-34	SDC4 Exon2	Fusion
	Exon-32	SDC4 Exon4	Fusion
	Exon-32	SLC34A2 Exon14 del	Deletion
	Exon-35	TPM3 Exon8	Fusion
	Exon-35	GOPC Exon8	Fusion
<i>RET</i>	Exon-35	LRIG3 Exon16	Fusion
	Exon-12	CCDC6 Exon1	Fusion
	Exon-12	NCOA4 Exon9	Fusion
	Exon-12	KIF5B Exon15	Fusion
	Exon-12	KIF5B Exon16	Fusion
	Exon-12	KIF5B Exon23	Fusion
	Exon-12	KIF5B Exon22	Fusion
<i>EGFR</i>	Exon-18	–	Mutation
	Exon-19	–	Mutation
	Exon-20	–	Mutation
	Exon-21	–	Mutation
<i>KRAS</i>	Exon-2	–	Mutation
<i>NRAS</i>	Exon-3	–	Mutation
<i>BRAF</i>	Exon-15	–	Mutation
<i>HER2</i>	Exon-20	–	Mutation
<i>PIK3CA</i>	Exon-20/9	–	Mutation
<i>MET</i>	Exon-14	–	Mutation

PCR, polymerase chain reaction.

Table S2 Histology type of SWI/SNF complex-deficient pulmonary neoplasms

Histology	Loss of expression of the SWI/SNF complex					
	All	SMARCA4	SMARCA2	SMARCB1	ARID1A	More than one subunit
Poorly/un-differentiated carcinoma	48 (47.5%)	42 (44.7%)	9 (50.0%)	2 (100.0%)	1 (100.0%)	6 (42.9%)
Undifferentiated tumors	25 (24.8%)	25 (26.6%)	6 (33.3%)	0 (0.0%)	0 (0.0%)	6 (42.9%)
Adenocarcinoma	17 (16.8%)	16 (17.0%)	1 (5.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Sarcomatoid carcinomas	2 (2.0%)	2 (2.1%)	1 (5.6)	0 (0.0%)	0 (0.0%)	1 (7.1%)
Squamous cell carcinoma	1 (1.0%)	1 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other NSCLC	8 (7.9%)	8 (8.5%)	1 (5.6%)	0 (0.0%)	0 (0.0%)	1 (7.1%)
Total	101	94	18	2	1	14

SWI/SNF, SWItch/Sucrose Nonfermentable; NSCLC, non-small cell lung cancer.

Table S3 Variant frequencies of common variant genes in pulmonary neoplasms with SWI/SNF complex-deficient

Gene	Variant present	No variant present	Total	Variant present percent (%)
<i>TP53</i>	22	9	31	71.0
<i>STK11</i>	10	21	31	32.3
<i>CDKN2A</i>	6	25	31	19.4
<i>KRAS</i>	9	40	49	18.4
<i>APC</i>	5	25	31	16.1
<i>EGFR</i>	4	45	49	8.2

SWI/SNF, SWItch/Sucrose Nonfermentable.

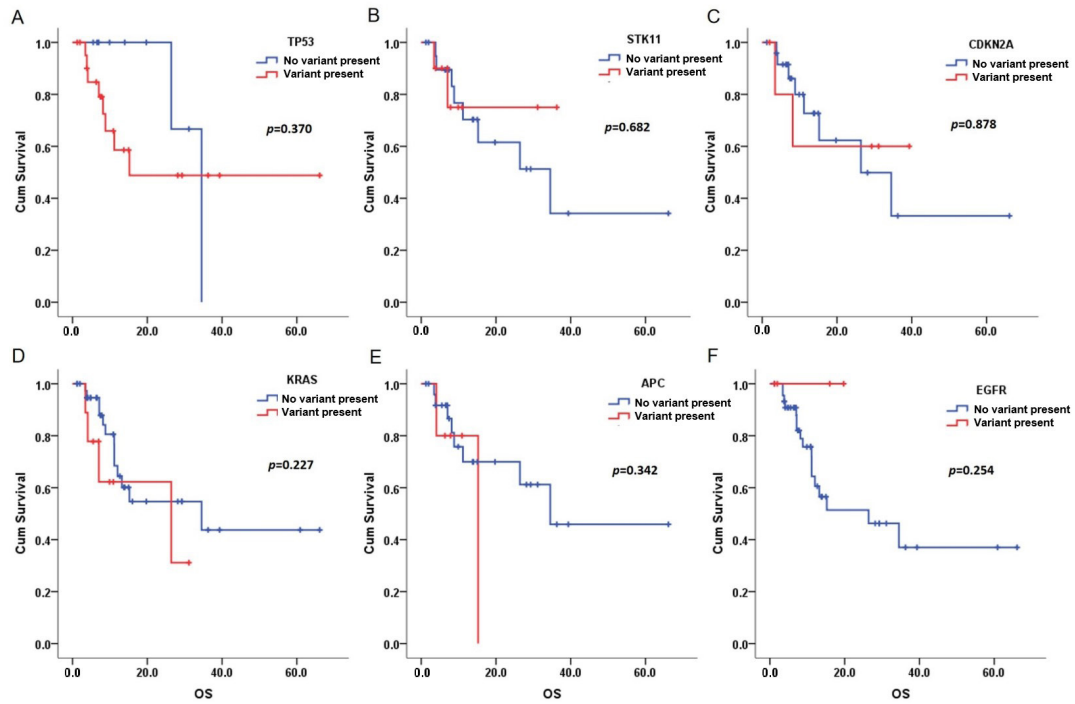


Figure S1 Kaplan-Meier analysis for OS with or without different gene variants. (A) TP53, (B) STK11, (C) CDKN2A, (D) KRAS, (E) APC, (F) EGFR. OS, overall survival.

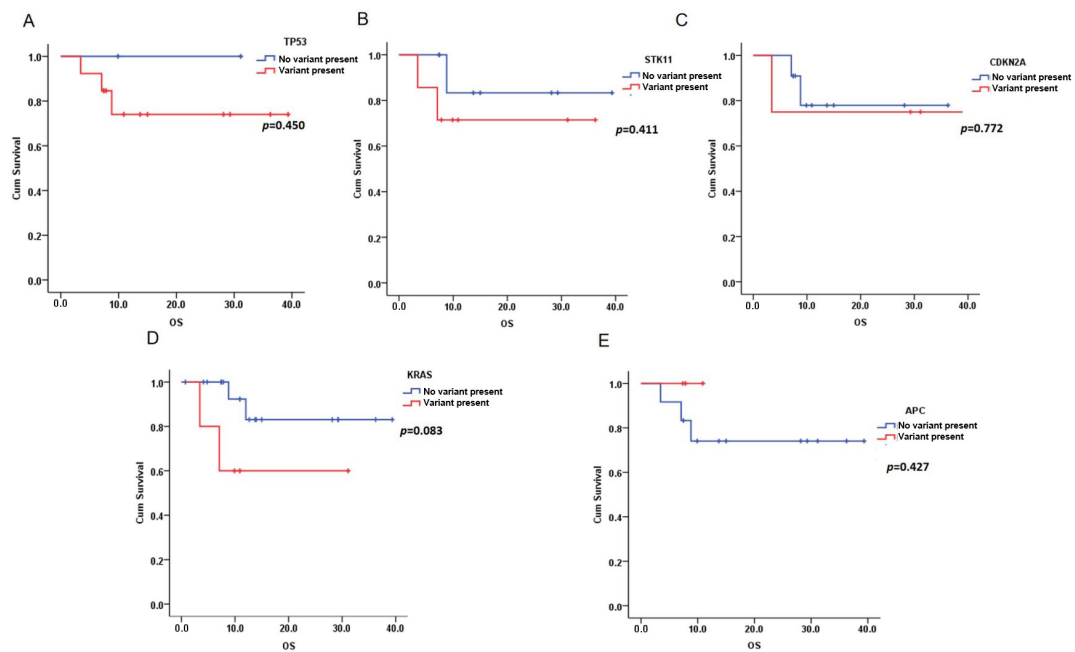


Figure S2 Kaplan-Meier analysis for OS to immunotherapy with or without different gene variants. (A) TP53, (B) STK11, (C) CDKN2A, (D) KRAS, (E) APC. OS, overall survival.

Table S4 Detailed information of all patients received radiotherapy and immunotherapy

No.	Age (years)	Gender	SWI/SNF deficiency	Pathological type	Stage at first diagnosis	PD-L1 TPS or TMB	Variants	IO	RT dose	RT site	Sequence and interval	OS (months)
1	52	M	SMARCA4	Poorly differentiated carcinoma	IV	TPS <1%	TP53	PD-1	50 Gy/25 F	Primary lesion	Concurrent	7.6
2	43	M	SMARCA4	Poorly differentiated carcinoma	III	TPS <1%	Unknown	PD-L1	60 Gy/30 F	Primary lesion	IO after RT, 1 month	12.7
3	51	M	SMARCA4	Poorly differentiated carcinoma	IV	Unknown	STK11, TP53, APC	PD-1	30 Gy/10 F	Brain	Concurrent	7.8
4	67	F	SMARCA4	NSCLC	III	TMB 10.3 Muts/Mb	TP53	PD-1	70 Gy/20 F	Primary lesion	RT after IO, 1 month	15.0
5	56	M	SMARCA4	Undifferentiated tumors	III	Unknown	Unknown	PD-L1	60 Gy/30 F	Primary lesion	IO after RT, 3 months	27.2
6	56	M	SMARCA4	Adenocarcinoma	IV	TPS <1%	Unknown	PD-1	27 Gy/3 F	Brain	IO after RT, 15 days	8.9
7	64	M	SMARCA4	NSCLC	IV	TPS 1%	Unknown	PD-1	30 Gy/10 F	Bone	IO after RT, 15 days	10.9
8	55	M	SMARCA4	Poorly differentiated carcinoma	I	TPS 95%	Unknown	PD-1 + CTLA-4	30 Gy/10 F	Bone	Concurrent	53.8
9	67	M	SMARCA4	Poorly differentiated carcinoma	IV	TPS 40%	TP53, APC, ERBB3	PD-1	30 Gy/10 F	Bone	Concurrent	7.4
10	61	M	SMARCA2	Adenocarcinoma	III	TPS 10%	KRAS	PD-L1	60 Gy/30 F	Primary lesion	IO after RT, 5 days	10.9
11	73	M	SMARCA2	Poorly differentiated carcinoma	IV	TPS 2%	Unknown	PD-1	60 Gy/30 F	Bone	Concurrent	4.8
12	50	M	SMARCA4	Adenocarcinoma	IV	TPS <1%	TP53, CDKN2A, NF1	PD-1	60 Gy/30 F, 27 Gy/3 F	Primary lesion + adrenal gland	Concurrent	29.3
13	54	M	SMARCA4	Poorly differentiated carcinoma	III	TPS <1%	STK11, TP53, APC	PD-1	60 Gy/30 F	Primary lesion	IO after RT, 2 months	10.9
14	51	M	SMARCA4	Poorly differentiated carcinoma	I	TMB 4.1 Muts/Mb	STK11, TP53	PD-1	50.4 Gy/28 F	Adrenal gland	Concurrent	36.3
15	56	M	SMARCA4	Poorly differentiated carcinoma	I	TPS 5%	Unknown	PD-1	45 Gy/15Fx	Bone	Concurrent	29.2
16	56	M	SMARCA4	Undifferentiated tumors	I	TMB 10.75 Muts/Mb	TP53	PD-L1	56 Gy/28 Fx	Primary lesion	IO after RT, 1 month	28.2

SWI/SNF, SWItch/Sucrose Nonfermentable; PD-L1, programmed death-ligand 1; TPS, tumor cell proportion score; TMB, tumor mutational burden; IO, immunotherapy; RT, radiotherapy; OS, overall survival; M, male; PD-1, programmed death-1; F, female; CTLA-4, cytotoxic T-lymphocyte antigen 4; NSCLC, non-small cell lung cancer.

Table S5 Analysis of the difference in receiving radiotherapy among patients with various stages of tumors

Radiotherapy	Stage I	Stage II	Stage III	Stage IV	Chi-Square P value
No	1 (4.5%)	0 (0.0%)	9 (40.9%)	12 (54.5%)	0.183
Yes	4 (25.0%)	0 (0.0%)	5 (31.3%)	7 (43.8%)	
Total	5 (13.2%)	0 (0.0%)	14 (36.8%)	19 (50.0%)	