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Supplemental information

Tumor microenvironment assessment-based

signatures for predicting response

to immunotherapy in non-small cell lung cancer

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Supplementary Materials

Figure S1



Figure S1 IKCscore construction flowchart, related to Figure 1.

The flowchart shows the IKCscore construction process including signature selection, gene selection and calculation.

Figure S2



Figure S2 TME landscape associated with ICBs responses, related to Figure 5.

(A) The heatmap illustrated immune pathways in high and low IKCscore tumors. (B) Alluvial diagram of high and low IKCscore groups with different TME subtypes (desert, excluded, and inflamed), and clinical response in IMvigor210 cohort. (C) IKCscore predominantly elevated in inflamed immune subtypes in the IMvigor210 cohort (Kruskal-Wallis, p < 2.2e-16). (D-E) Boxplot showed that IKCscore mainly increased in the IE subtype, while the lowest IKCscore was observed in the D subtype in TCGA-LUAD (D) and TCGA-LUSC (E). (F) The cell interaction network in responders (R) and non-responders (NR). (G) The volcano plot revealed the ligand-receptor pairs, transcription factors, and other factors related to ICBs responses. IE, immune-enriched, non-fibrotic; IE/F, immune-enriched/fibrotic; F, fibrotic; D, immune-depleted.

Figure S3



Figure S3 Mutational features associated with IKCscore and responses to immunotherapy, related to Figure 6.

(A) The oncoplot of the top 20 mutated genes in high and low IKCscore groups in the TCGA-LUAD cohort. (B) KEAP1 and STK11 mutations were significantly correlated with lower IKCscore compared with wild type (Wilcoxon test, p = 2.4e-11, p = 1.7e-10, respectively). (C) The oncoplot of top 20 mutated genes in high and low IKCscore groups in TCGA-LUSC cohort. (D) KEAP1 and STK11 mutations were significantly correlated with lower IKCscore compared with wild type (Wilcoxon test, p = 0.00083, p = 0.11, respectively). (E-F) Mutant pathway enrichment in responders (E) and non-responders (F).

Table S1

Patient_ID	Response	Age	Tumor_types	Sex	Treatment
Patient_1	NR	41	Others	М	Combination
Patient_2	NR	43	SQC	M	Combination
Patient_3	R	56	ADC	M	Combination
Patient_4		65	ADC	M	
Patient_5		51			Lombination Monotherapy
Patient 7		51			Combination
Patient 8				N/	
Patient 9	NR	63	Others	M	Combination
Patient 10	NR	63	SQC	M	Combination
Patient 11	NR	39	SQC	F	Combination
Patient_12	R	74	SQC	M	Combination
Patient_13	NR	59	ADC	М	Combination
Patient_14	NR	46	ADC	М	Combination
Patient_15	NR	68	Others	М	Combination
Patient_16	NR	53	ADC	М	Combination
Patient_17	R	52	SQC	М	Combination
Patient_18	R	56	ADC	M	Combination
Patient_19	NR	49	ADC	M	Combination
Patient_20	NR	57	ADC	M	Combination
Patient_21	R	31	SQC	F	Combination
Patient_22	NR	68	SQC	M	Monotherapy
Patient_23		55	Others		
Patient_24		59	SQC		Monotherapy
Patient_25		53			Monotherapy
Patient 27	P	54	ADC Others	M	Monotherapy
Patient 28	NR	58	SOC	M	Monotherapy
Patient 29	R	54		M	Monotherapy
Patient 30	R	65	ADC	M	Combination
Patient 31	R	76	ADC	M	Combination
Patient 32	R	50	ADC	F	Combination
Patient_33	NR	81	SQC	F	Monotherapy
Patient_34	R	50	ADC	F	Monotherapy
Patient_35	NR	52	Others	F	Combination
Patient_36	NR	56	ADC	М	Combination
Patient_37	NR	58	ADC	M	Monotherapy
Patient_38	R	72	ADC	М	Combination
Patient_39	NR	54	SQC	F	Combination
Patient_40	R	75	ADC	M	Monotherapy
Patient_41	K ND	62	SQC		
Patient_42		66	ADC		
Patient 43	R P	54		N/	
Patient 45	P	54	ADC SOC	N/	Combination
Patient 46	R	09 54	SOC	M	Combination
Patient 47	R	59	ADC	M	Combination
Patient 48	NR	55	ADC	M	Combination
Patient 49	NR	63	ADC	M	Combination
Patient_50	NR	66	SQC	M	Combination
Patient_51	R	56	Others	М	Combination
Patient_52	NR	56	ADC	М	Combination
Patient_53	R	58	ADC	М	Combination
Patient_54	NR	59	Others	М	Combination
Patient_55	R	78	ADC	Μ	Monotherapy
Patient_56	NR	69	ADC	M	Combination
Patient_57	NR	48	ADC	M	Combination
Patient_58	NR	75	SQC	M	Combination
Patient_59	K	69	SQC	M	Combination
Patient_60	NK	59	ADC		
Patient_61	K ND	68	ADC		
Patient_62		66	5QC		
Patient 64		58		Г	Combination
Patient 65	NR	02 ج	500	M	Combination
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Table S1 Patient characteristics of the advanced NFH cohort treated with anti-PD-1 immunotherapy,related to Figure 1 and Table 1.

Table S2

Immune score	KRT score	Immune Checkpoint score
MS4A6A	KRTAP5-5	CD274
C1QC	KCNC1	PDCD1LG2
HLA-DQB1	ADAM30	CTLA4
RAMP2	CELF3	PDCD1
MATN3	PNMA5	LAG3
CDK15	POU3F2	HAVCR2
WNT2	UNC80	TIGIT
FOLR2	TMEM132D	
HPGD	ATP2B3	
KDR	CPLX2	
LGMN	ZFP42	
PTGER2	INA	
F13A1	KRTAP5-1	
SLCO2B1	GP2	
TMEM100	SCGN	
	ST18	
	BLOC1S5-TXN	IDC5
	FMN2	
	ANO3	