

Supplementary Table 1:

Baseline characteristics of the TCGA-LUAD dataset according to the lung adenocarcinoma

Demographics	level	Overall
n		493
OS.time(mean)		2.42
OS	Alive	314 (63.7%)
	Dead	179 (36.3%)
Age(mean)		65.26
Gender	female	268 (54.4%)
	male	225 (45.6%)
Stage	Stage I	263 (53.3%)
	Stage II	118 (23.9%)
	Stage III	79 (16.0%)
	Stage IV	25 (5.1%)
	unknow	8 (1.6%)
T	T1	167 (33.9%)
	T2	260 (52.7%)
	T3	45 (9.1%)
	T4	18 (3.7%)
	unknow	3 (0.6%)
M	M0	325 (65.9%)
	M1	24 (4.9%)
	unknow	144 (29.2%)
N	N0	319 (64.7%)
	N1	93 (18.9%)
	N2	68 (13.8%)
	N3	2 (0.4%)
	unknow	11 (2.2%)

Supplementary Table 2:

Baseline characteristics of the GSE50081 dataset according to the lung adenocarcinoma

Demographics	level	Overall
n		127
OS.time(mean)		4.03 (2.27%)
OS	Alive	76 (59.8%)
	Dead	51 (40.2%)
Age(mean)		68.73 (9.71%)
Gender	Female	62 (48.8%)
	Male	65 (51.2%)
Stage	Stage I	91 (71.7%)
	Stage II	36 (28.3%)
T	T1	43 (33.9%)
	T2	82 (64.6%)
	T3	2 (1.6%)
M	M0	127 (100.0%)
N	N0	94 (74.0%)
	N1	33 (26.0%)

Supplementary Table 3:

Baseline characteristics of the GSE30219 dataset according to the lung adenocarcinoma

Demographics	level	Overall
n		83
OS.time(mean)		6.64
OS	Alive	40 (48.2%)
	Dead	43 (51.8%)
Age(mean)		61.14
Gender	Female	16 (19.3%)
	Male	67 (80.7%)
M	M0	83 (100.0%)
N	N0	80 (96.4%)
	N1	3 (3.6%)
T	T1	69 (83.1%)
	T2	12 (14.5%)
	T3	2 (2.4%)

Supplementary Table 4:

Baseline characteristics of the GSE3141 dataset according to the lung adenocarcinoma

Demographics	level	Overall
n		58
OS.time(mean)		2.63
OS	Alive	26 (44.8%)
	Dead	32 (55.2%)

Supplementary Table 5:

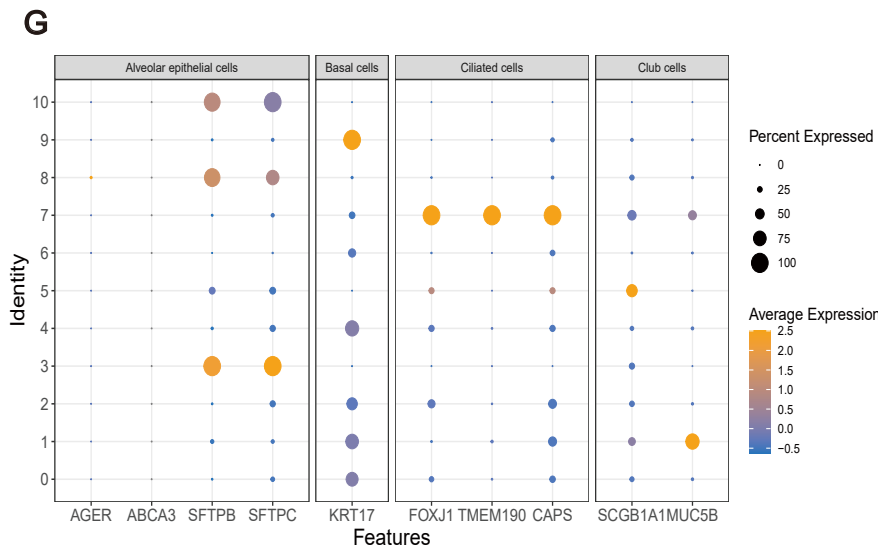
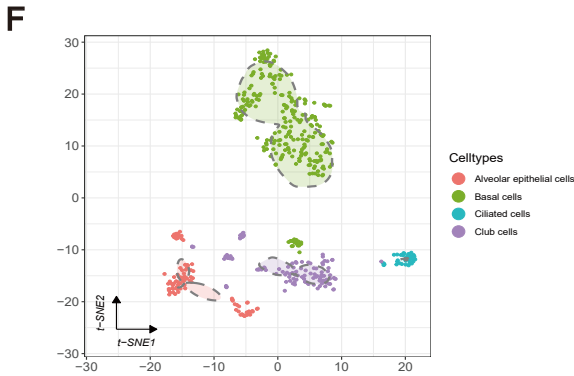
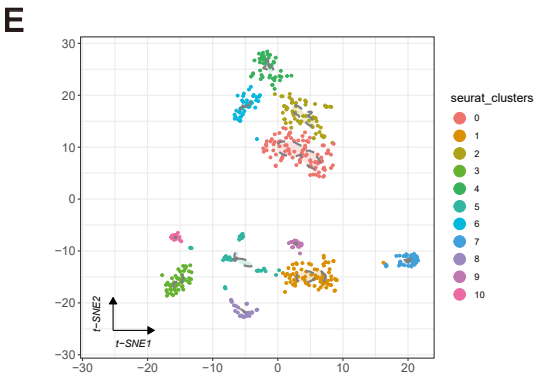
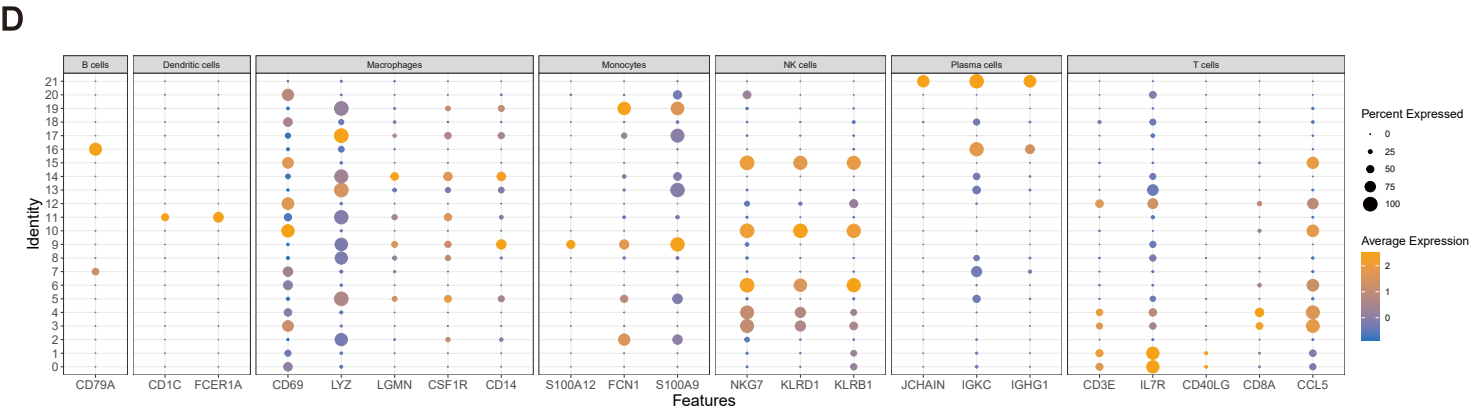
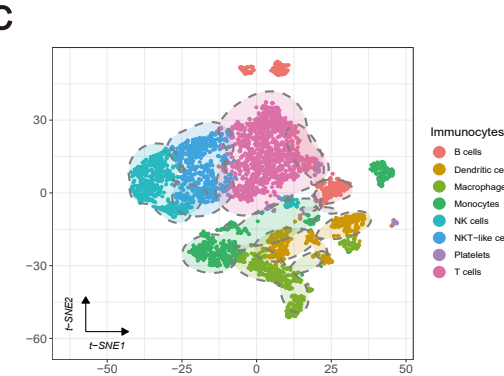
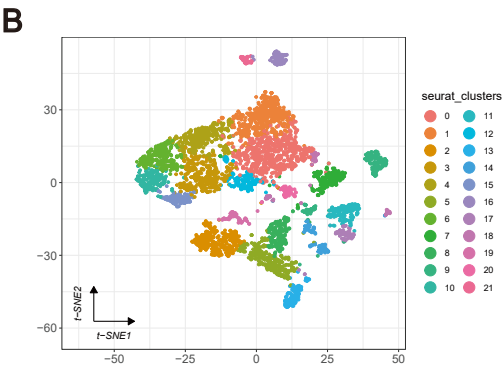
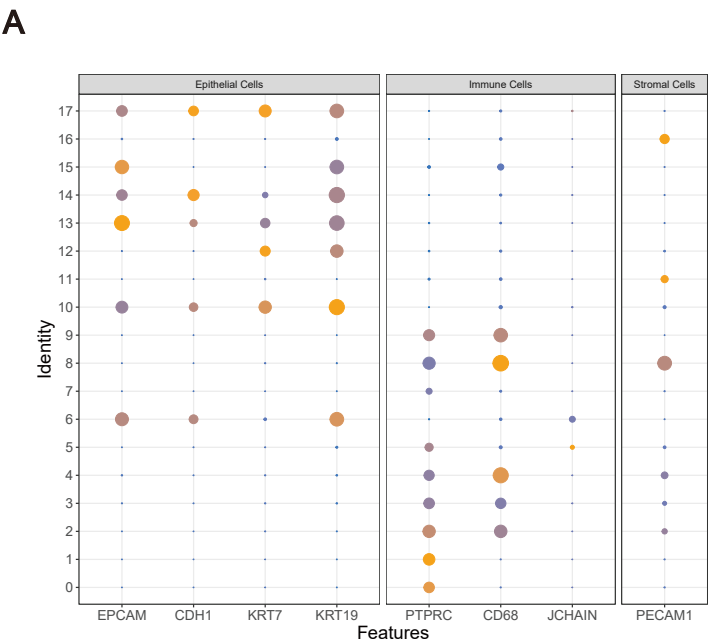
Baseline characteristics of the GSE72094 dataset according to the lung adenocarcinoma

Demographics	level	Overall
n		393
Stage	Stage I	254 (64.6%)
	Stage II	67 (17.0%)
	Stage III	57 (14.5%)
	Stage IV	15 (3.8%)
Gender	Female	219 (55.7%)
	Male	174 (44.3%)
Age(mean)		69.35

Supplementary Table 6:

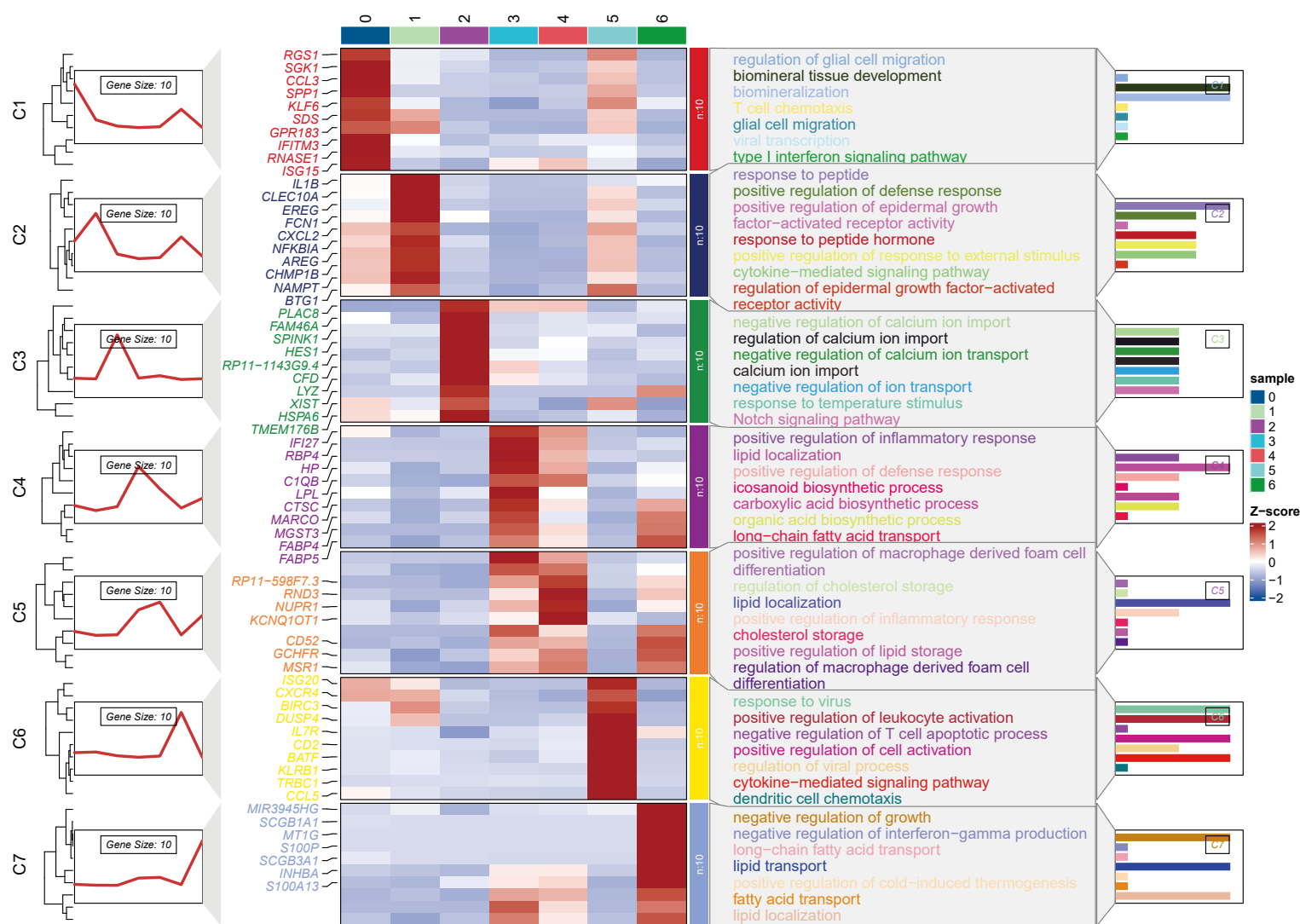
The result of univariate regression analysis

id	HR	HR.95L	HR.95H	pvalue
A2M	0.886879853	0.789456821	0.996325389	0.043179381
CD83	0.794148348	0.676710333	0.931966851	0.00475894



Supplementary Figure 1: The cell composition in the microenvironment of LUAD

(A) Dot plot displaying expression of cell-type markers across cell clusters. Dot size indicates the percentage of expressed cells, colored by their relative expression levels. (B) t-SNE plot displaying the immune cell composition in the microenvironment of LUAD, colored according to cell types. (C) t-SNE plot displaying the immune cell clusters in the microenvironment of LUAD. (D) Dot plot displaying expression of immune cell-type markers across cell clusters. Dot size indicates the percentage of expressed cells, colored by their relative expression levels. (E) t-SNE plot displaying the epithelial cell clusters in the microenvironment of LUAD. (F) t-SNE plot displaying the epithelial cell composition in the microenvironment of LUAD, colored according to cell types. (G) Dot plot displaying expression of epithelial cell-type markers across cell clusters. Dot size indicates the percentage of expressed cells, colored by their relative expression levels.



Supplementary Figure 2: The associated information of seven TAMs clusters identified