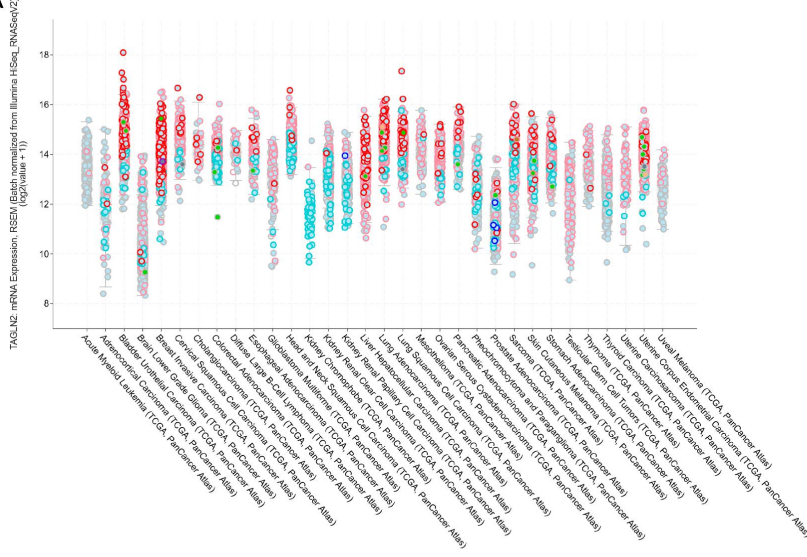
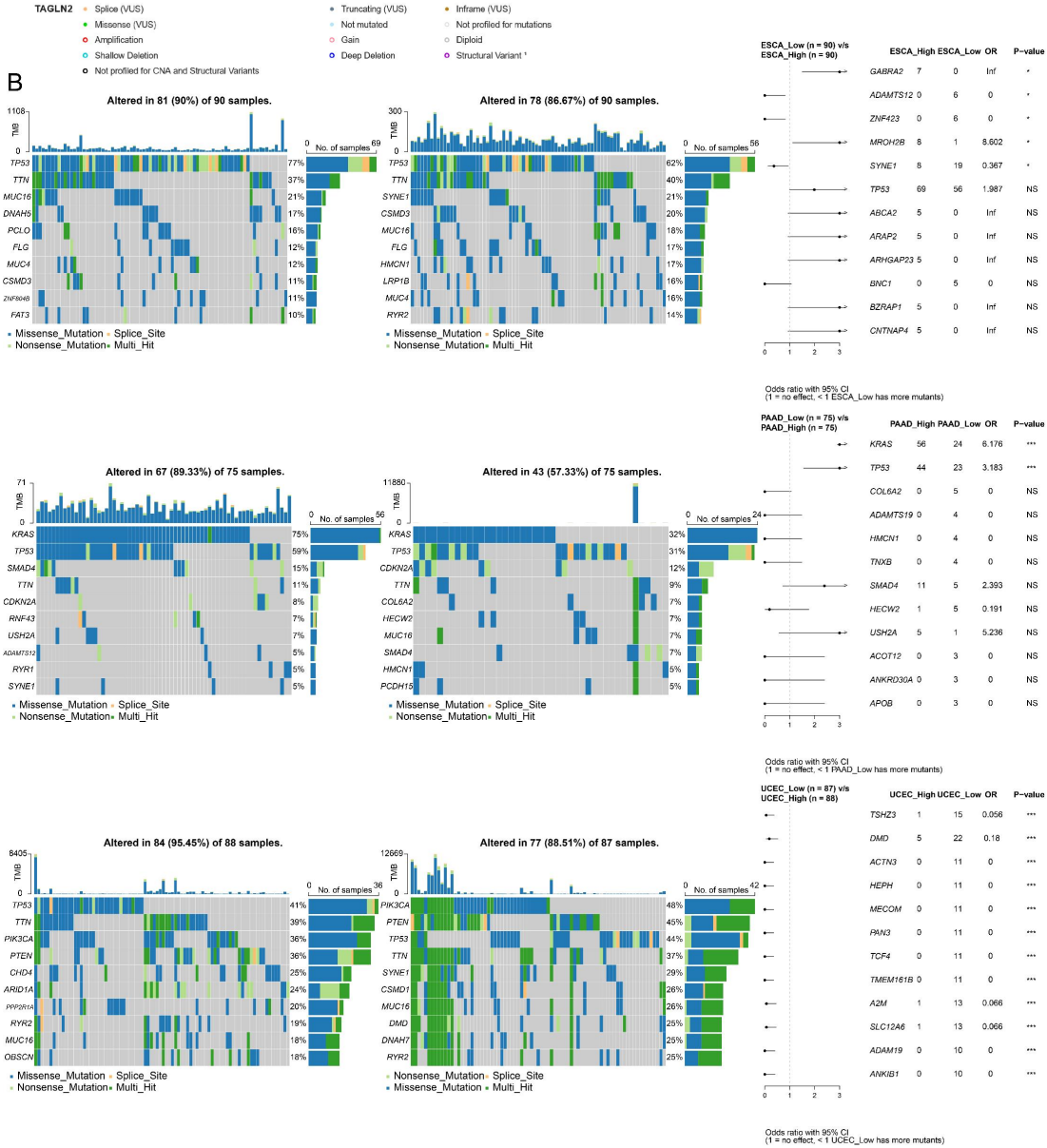


Supplementary Figure 1. (A) The expression levels of TAGLN2 based on the different pathological stages analyzing using GEPIA2.0. (B) The immunohistochemistry images of TAGLN2 in different normal(left) and paired tumor(right) tissues from HPA database in indicated cancer types.

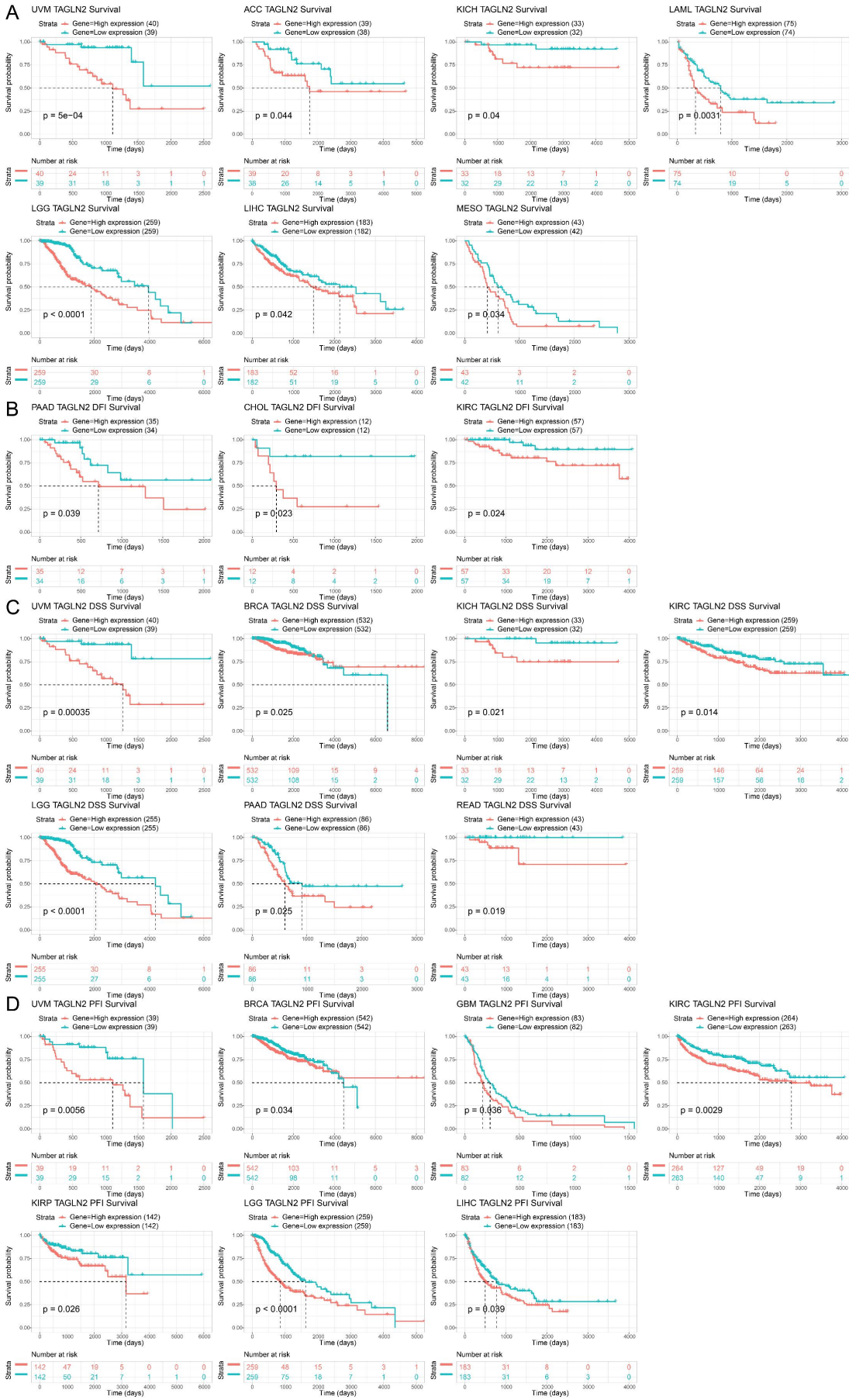
A



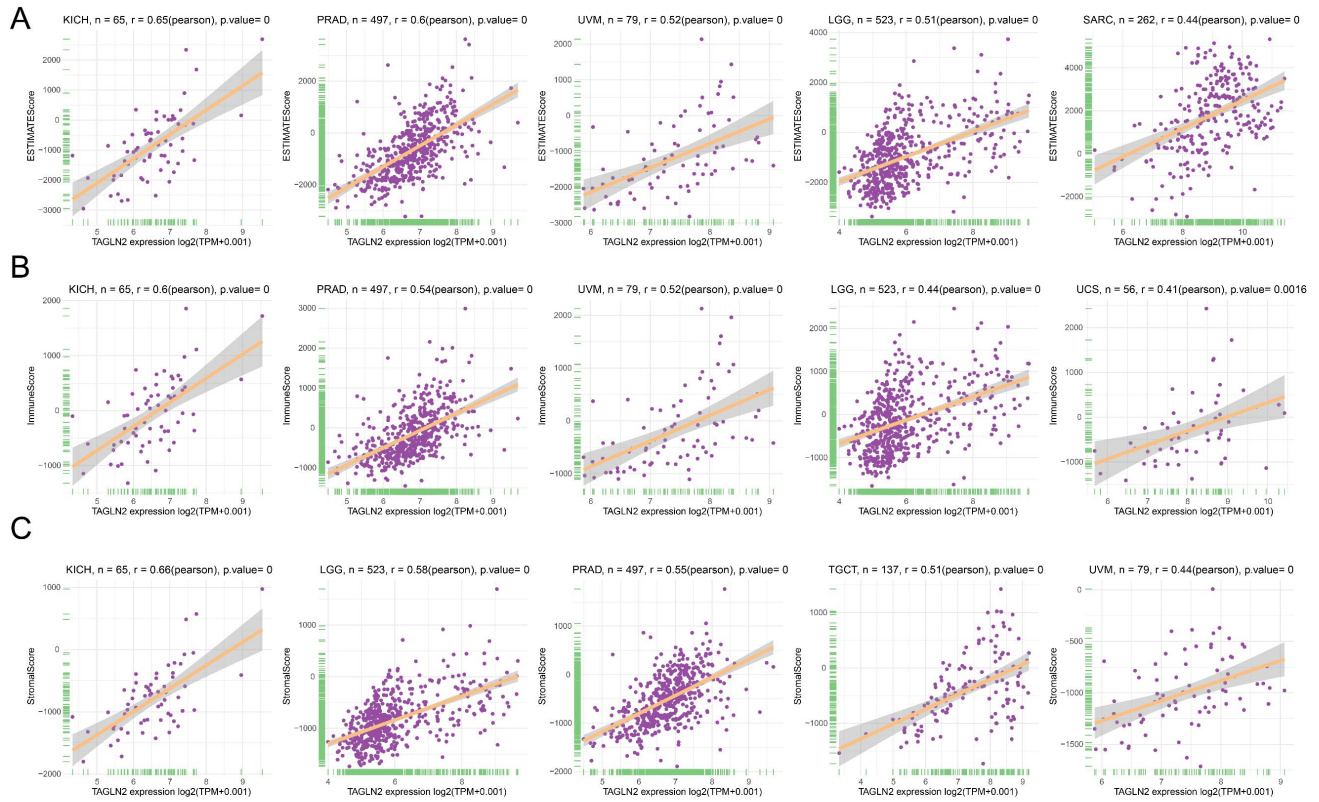
B



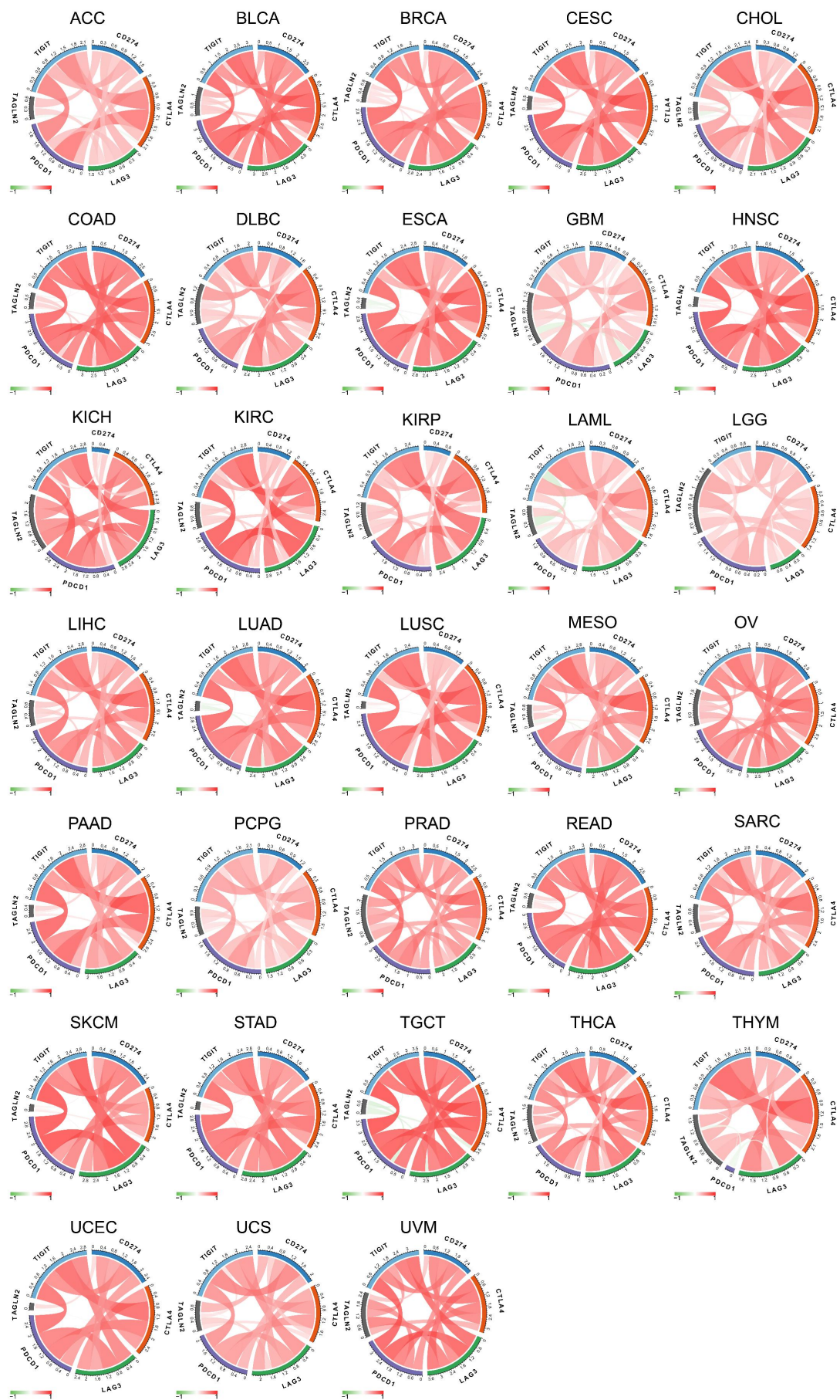
Supplementary Figure 2. (A) General mutation count of TAGLN2 in various TCGA cancer types according to the cBioPortal database. (B) Waterfall plots of tumor somatic mutation in the high- and low-risk groups in ESCA, PAAD, and UCEC. * p-value < 0.05, ** p-value < 0.01, *** p-value < 0.001, and **** p-value < 0.0001.



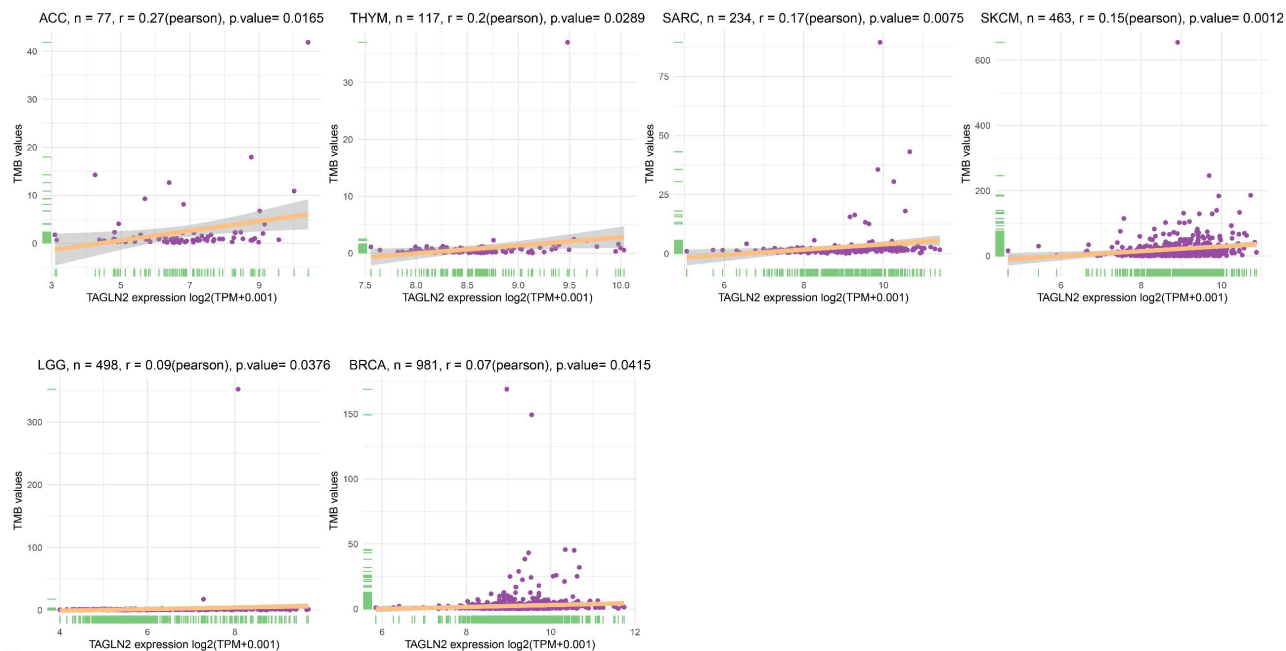
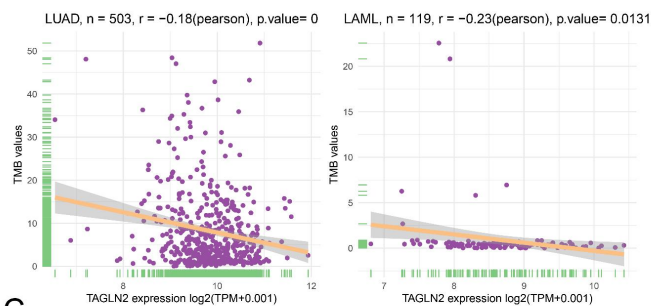
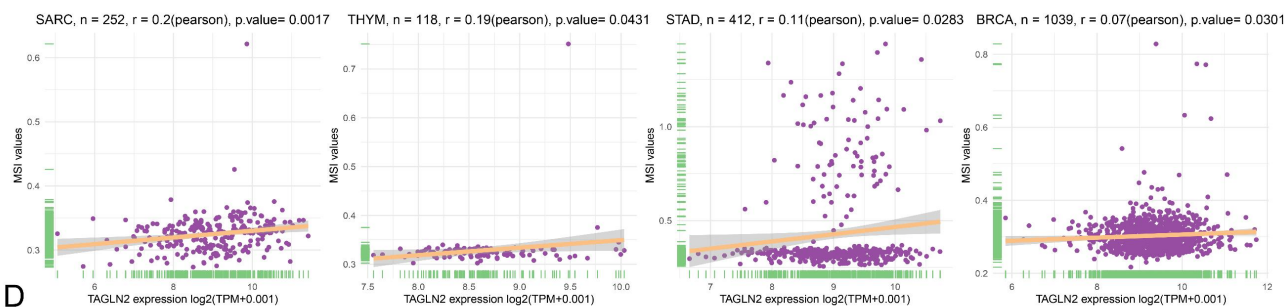
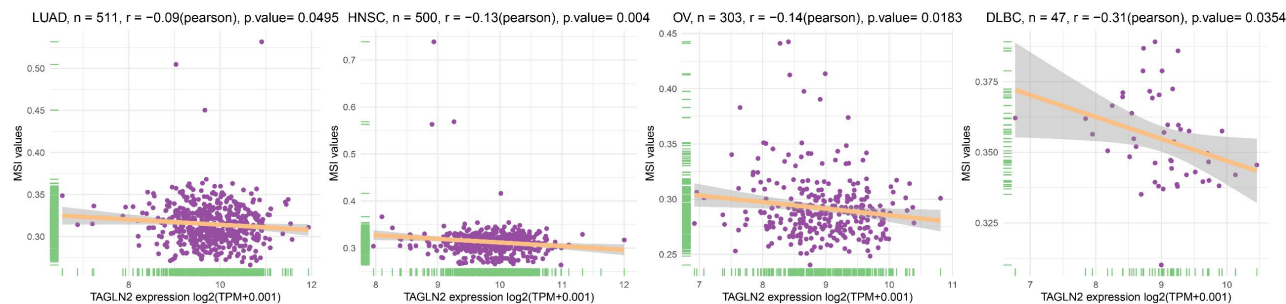
Supplementary Figure 3. The corresponding Kaplan-Meier curves regarding OS(A), DFI(B), DSS(C), and PFI(D).



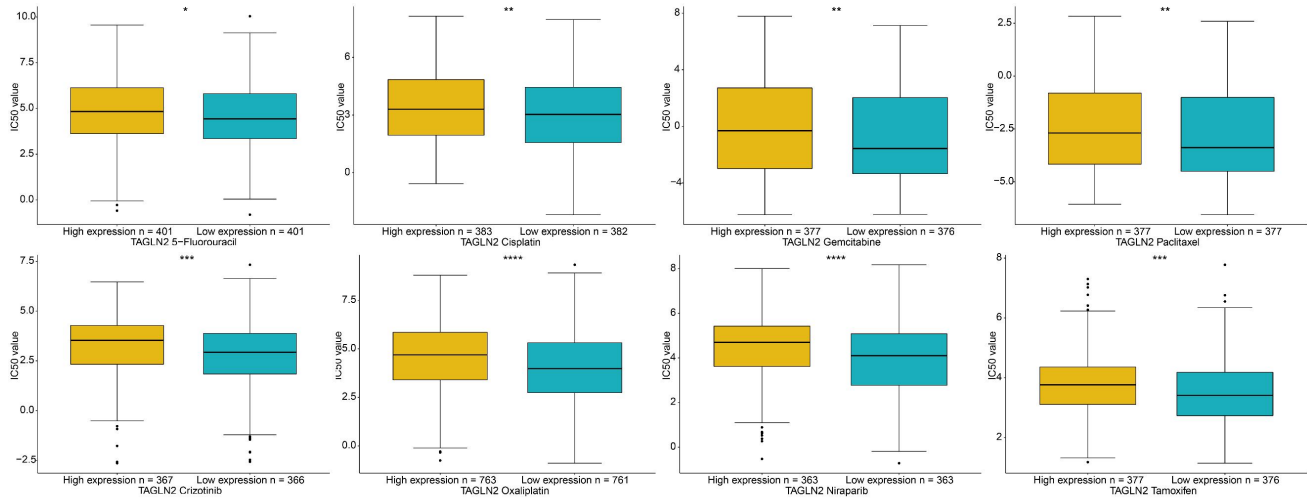
Supplementary Figure 4. The top 5 tumors with the most significant correlation between the degree of immune infiltration and TAGLN2 expression for ESTIMATEScore (A); for ImmuneScore(B); for StromalScore (C), solely.



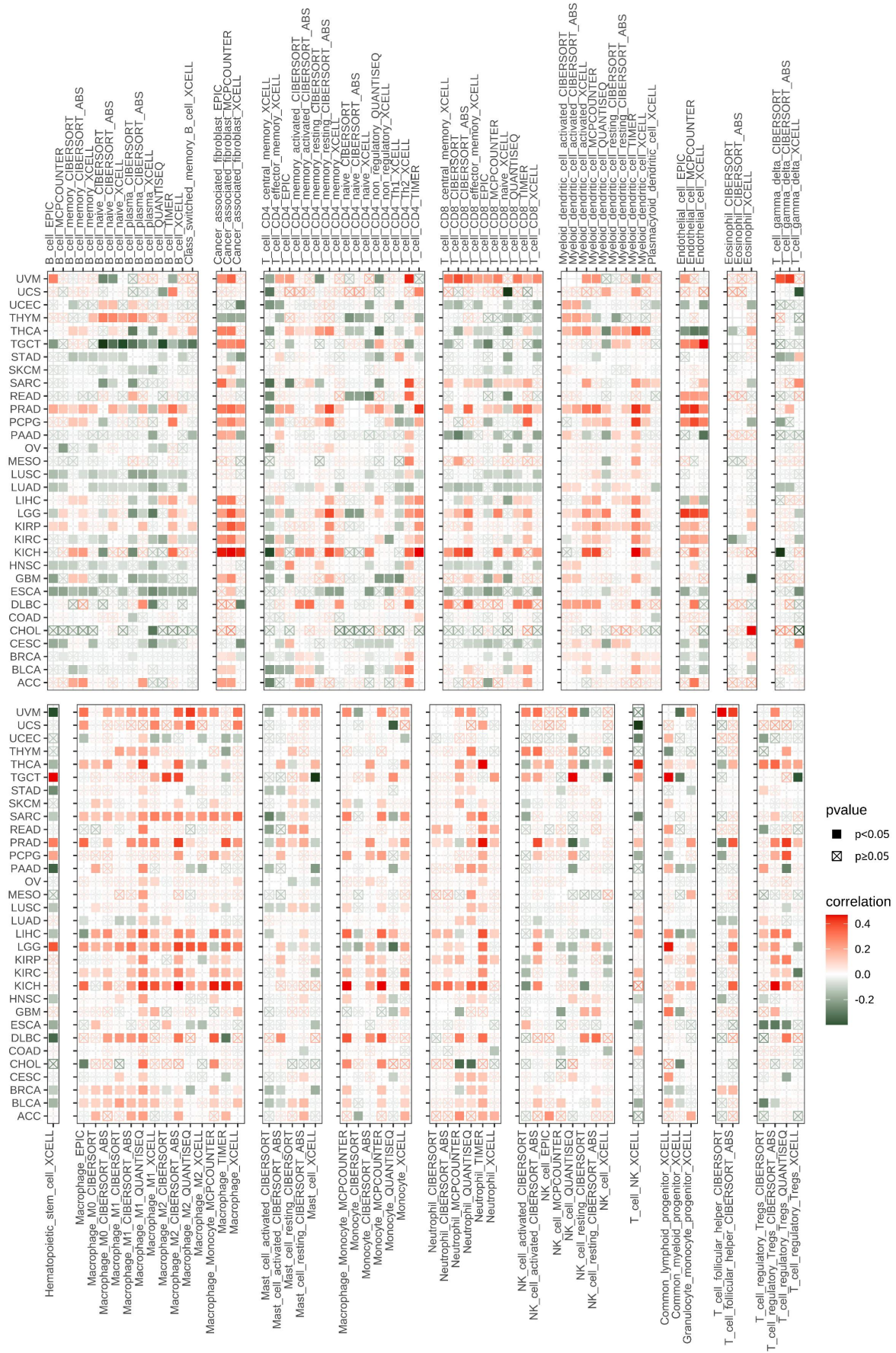
Supplementary Figure 5. Correlation analyses of the TAGLN2 expression with immune checkpoint genes in pan-cancer.

A**B****C****D**

Supplementary Figure 6. Scatter plots between TAGLN2 and TMB and MSI.



Supplementary Figure 7. An illustration of the relationship between TAGLN2 expression and common medication response. * p-value < 0.05, ** p-value < 0.01, *** p-value < 0.001, and **** p-value < 0.0001.



Supplementary Figure 8. The relevance of TAGLN2 expression and immune cell infiltration in pan-cancer by using TIMER2.0 database.

Table S1. Summary of Spearman's correlation between TAGLN2 expression and drug resistance in cancer cell lines based upon the GDSC2 dataset.			
correlation	pvalue	type	label
0.137431	9.25E-05	Camptothecin	positive
0.152999	2.68E-05	Vinblastine	positive
0.136433	0.0001537	Cisplatin	positive
0.224242	5.44E-10	Cytarabine	positive
0.088256	0.0008347	Docetaxel	positive
0.147182	5.39E-05	Navitoclax	positive
0.213021	3.39E-09	Vorinostat	positive
0.145396	6.15E-05	Nilotinib	positive
0.183712	3.52E-07	Olaparib	positive
0.148305	4.45E-05	Wee1 Inhibitor	positive
0.197397	3.40E-08	Nutlin-3a (-)	positive
0.186232	4.34E-07	Mirin	positive
0.118443	0.0011118	PD173074	positive
0.149247	5.35E-05	Alisertib	positive
0.100784	0.0052102	MK-2206	positive
0.149165	3.40E-05	Palbociclib	positive
0.082419	0.0240889	Dactolisib	positive
0.092062	0.0130808	Obatoclox Mesylate	positive
0.088717	0.0119553	5-Fluorouracil	positive
0.12063	0.0009034	Paclitaxel	positive
0.154655	2.61E-05	Crizotinib	positive
0.245945	7.51E-12	Sorafenib	positive
0.172575	9.38E-07	Irinotecan	positive
0.203272	1.12E-15	Oxaliplatin	positive
0.15266	1.48E-05	GSK1904529A	positive
0.14032	0.0001488	PRIMA-1MET	positive
0.191396	2.03E-07	Niraparib	positive
0.11217	0.0018757	MK-1775	positive
0.107171	0.0038644	Dinaciclib	positive
0.122979	0.0007199	Gemcitabine	positive
0.162673	7.24E-06	Tamoxifen	positive
0.124758	1.40E-06	Fulvestrant	positive
0.163295	3.54E-06	EPZ004777	positive
0.123364	0.0007157	YK-4-279	positive
0.272778	6.56E-08	Daporinad	positive
0.171239	3.48E-06	BMS-345541	positive
0.147975	5.02E-05	Talazoparib	positive
0.143158	8.07E-05	Dabrafenib	positive
0.15247	2.86E-05	Temozolomide	positive

0.119885	0.0012108	AZD5438	positive
0.122993	0.0009198	IAP_5620	positive
0.083007	0.0253146	AZD2014	positive
0.159464	1.60E-05	AZD1208	positive
0.11487	0.001935	Ruxolitinib	positive
0.191823	4.55E-08	Linsitinib	positive
0.172336	2.09E-06	Epirubicin	positive
0.156313	1.75E-05	Cyclophosphamide	positive
0.191385	1.36E-07	Pevonedistat	positive
0.087223	0.0008015	Uprosertib	positive
0.090227	0.0150906	LCL161	positive
0.158402	6.92E-06	EPZ5676	positive
0.114509	0.0020144	IWP-2	positive
0.171372	3.42E-06	Leflunomide	positive
0.147937	5.87E-05	Entinostat	positive
0.168194	1.72E-06	LGK974	positive
0.128343	0.0005273	VE-822	positive
0.090008	0.0152682	CZC24832	positive
0.102085	0.0063304	AZD5582	positive
0.108762	0.0035009	GSK2606414	positive
0.143212	0.0001079	PFI3	positive
0.185824	4.60E-07	PCI-34051	positive
0.165788	7.11E-06	Wnt-C59	positive
0.103449	0.0053012	GSK343	positive
0.193927	1.39E-07	ML323	positive
0.074045	0.04611	PRT062607	positive
0.186158	4.38E-07	AGI-6780	positive
0.118249	0.0014136	Picolinici-acid	positive
0.11348	0.0022122	CDK9_5576	positive
0.122581	0.0009418	CDK9_5038	positive
0.149407	5.57E-05	Eg5_9814	positive
0.108513	0.0034178	IRAK4_4710	positive
0.106853	0.0039467	JAK1_8709	positive
0.152164	4.03E-05	AZD5991	positive
0.105615	0.0044157	PAK_5339	positive
0.197734	7.96E-08	TAF1_5496	positive
0.082902	0.0257044	ULK1_4989	positive
0.095071	0.0104296	IGF1R_3801	positive
0.088826	0.0166664	JAK_8517	positive
0.147074	5.10E-05	AZD4547	positive
0.165315	7.55E-06	Zoledronate	positive
0.075661	0.041544	Acetalax	positive
0.181426	8.62E-07	Carmustine	positive
0.141853	0.0001256	Topotecan	positive
0.145048	8.77E-05	Teniposide	positive

0.157502	2.02E-05	Mitoxantrone	positive
0.117914	6.12E-06	Dactinomycin	positive
0.129214	0.0004826	Fludarabine	positive
0.123534	0.0008583	Nelarabine	positive
0.158993	1.82E-05	Vincristine	positive
0.119731	0.0012286	Podophyllotoxin bromide	positive
0.133832	0.0003049	Dihydrorotenone	positive
0.156643	2.24E-05	Gallibiscoquinazole	positive
0.164487	8.40E-06	Elephantin	positive
0.105677	0.0043653	Sinularin	positive
0.229682	4.02E-10	Sabutoclax	positive
0.144473	9.36E-05	LY2109761	positive
0.13952	0.0001624	OF-1	positive
0.188647	3.05E-07	KRAS (G12C) Inhibitor-12	positive
0.107543	0.0032102	Buparlisib	positive
0.116515	6.28E-06	Ulixertinib	positive
0.18423	3.57E-07	Venetoclax	positive
0.164427	6.18E-06	ABT737	positive
0.120307	0.0009778	Afuresertib	positive
0.147895	4.84E-05	AGI-5198	positive
0.101869	0.005262	AZD6738	positive
0.09985	0.0062386	Ipatasertib	positive
0.132733	0.0002698	GDC0810	positive
0.164623	5.93E-06	GSK2578215A	positive
0.134321	0.0002272	I-BRD9	positive
0.170128	2.83E-06	Telomerase Inhibitor IX	positive
0.182636	4.93E-07	MIRA-1	positive
0.134692	0.0002182	NVP-ADW742	positive
0.188901	1.91E-07	P22077	positive
0.135042	0.0002121	Savolitinib	positive
0.137423	0.0001616	UMI-77	positive
0.094377	0.009756	Sepantronium bromide	positive
0.152233	2.87E-05	MIM1	positive
0.127397	0.0004824	Foretinib	positive
0.168599	3.65E-06	BIBR-1532	positive
0.120319	0.0009844	Pyridostatin	positive
0.076503	0.0369544	AMG-319	positive
0.108095	0.0031155	MK-8776	positive
0.138917	0.000141	Vinorelbine	positive
0.113854	0.0018815	LJI308	positive
0.102372	0.0052207	AZ6102	positive
0.078684	0.0321095	GSK591	positive
0.098878	0.0070674	VE821	positive
correlation	pvalue	type	label
-0.101338	0.0049105	Staurosporine	negative

-0.201365	2.29E-08	Dasatinib	negative
-0.094647	0.0073875	Sapitinib	negative
correlation	pvalue	type	label
0.031573	0.3882146	Gefitinib	non-significant
-0.132653	0.3635483	Axitinib	non-significant
0.046751	0.197951	AZD7762	non-significant
0.184417	0.0767918	SB216763	non-significant
-0.144485	0.327189	KU-55933	non-significant
0.028036	0.4281334	Afatinib	non-significant
0.053247	0.1338516	PLX-4720	non-significant
-0.038853	0.7954134	NU7441	non-significant
0.013506	0.9290141	Doramapimod	non-significant
-0.281568	0.0551941	ZM447439	non-significant
0.006188	0.9667066	RO-3306	non-significant
0.038826	0.2841218	Pictilisib	non-significant
0.086763	0.408264	AZD8055	non-significant
0.037441	0.2898823	PD0325901	non-significant
0.057549	0.1172829	Rapamycin	non-significant
-0.075657	0.629672	BI-2536	non-significant
-0.017571	0.6311546	BMS-536924	non-significant
-0.198437	0.1763559	Tozasertib	non-significant
0.116261	0.4313262	PF-4708671	non-significant
-0.010172	0.7810682	Erlotinib	non-significant
-0.024843	0.4960777	Bortezomib	non-significant
0.005319	0.9713773	GSK269962A	non-significant
-0.162187	0.2871316	SB505124	non-significant
0.058901	0.1135601	AZ960	non-significant
0.012054	0.7457577	XAV939	non-significant
-0.065599	0.0694099	Trametinib	non-significant
-0.013026	0.7260523	AZD1332	non-significant
0.015393	0.6730301	Lapatinib	non-significant
0.056956	0.1072359	Luminespib	non-significant
0.064432	0.0683655	Alpelisib	non-significant
0.027209	0.4418907	Taselisib	non-significant
9.09E-05	0.997952	SCH772984	non-significant
-0.118076	0.0562912	OSI-027	non-significant
0.05742	0.1221625	WZ4003	non-significant
-0.016919	0.6492489	I-BET-762	non-significant
0.034926	0.3476916	RVX-208	non-significant
-0.030087	0.4182479	OTX015	non-significant
-0.044177	0.2345019	Entospletinib	non-significant
0.121061	0.4228819	Ribociclib	non-significant
0.027182	0.4649155	AZD5153	non-significant
-0.026554	0.4749902	ERK_2440	non-significant
0.010731	0.7728548	ERK_6604	non-significant

0.048352	0.1931427	VSP34 8731	non-significant
-0.030827	0.4068958	Selumetinib	non-significant
-0.018258	0.6242955	Ibrutinib	non-significant
0.004237	0.9092679	MN-64	non-significant
-0.016518	0.6474281	MG-132	non-significant
0.043447	0.2349834	BDP-00009066	non-significant
-0.00884	0.8081476	AZD3759	non-significant
0.062201	0.0889218	AZD5363	non-significant
-0.024534	0.5025893	AZD8186	non-significant
0.053999	0.1398236	Osimertinib	non-significant
0.052995	0.1473524	Cediranib	non-significant
0.056126	0.1284556	GNE-317	non-significant
0.016584	0.6506734	WIKI4	non-significant
0.058019	0.1126142	WEHI-539	non-significant
0.004481	0.9025659	BPD-00008900	non-significant
0.051328	0.1622154	VX-11e	non-significant
-0.015957	0.9152177	AZD6482	non-significant
0.052334	0.1544064	AT13148	non-significant
-0.085271	0.5820817	BMS-754807	non-significant
0.095976	0.5210393	JQ1	non-significant

Table S1. Summary of Spearman’s correlation between TAGLN2 expression and drug resistance in cancer cell lines based upon the GDSC2 dataset.

Table S2. The sample size information.				
Tumor type	Full names	Sample size of tumor tissues from TCGA	Sample size of normal tissues from TCGA	Sample size of normal tissues from GTEx
ACC	Adrenocortical carcinoma	77	0	128
BLCA	Bladder Urothelial Carcinoma	407	19	9
BRCA	Breast invasive carcinoma	1098	113	179
CESC	Cervical squamous cell carcinoma and endocervical adenocarcinoma	306	3	10
CHOL	Cholangiocarcinoma	36	9	0
COAD	Colon adenocarcinoma	288	41	308
DLBC	Lymphoid Neoplasm Diffuse Large B-cell Lymphoma	47	0	444
ESCA	Esophageal carcinoma	182	13	653
GBM	Glioblastoma multiforme	165	0	1152
HNSC	Head and Neck squamous cell carcinoma	520	44	0
KICH	Kidney Chromophobe	66	25	28
KIRC	Kidney renal clear cell carcinoma	531	72	28
KIRP	Kidney renal papillary cell carcinoma	289	32	28

LAML	Acute Myeloid Leukemia	173	0	70
LGG	Brain Lower Grade Glioma	522	0	1152
LIHC	Liver hepatocellular carcinoma	371	50	110
LUAD	Lung adenocarcinoma	515	59	288
LUSC	Lung squamous cell carcinoma	498	50	288
MESO	Mesothelioma	87	0	0
OV	Ovarian serous cystadenocarcinoma	427	0	88
PAAD	Pancreatic adenocarcinoma	179	4	167
PCPG	Pheochromocytoma and Paraganglioma	182	3	0
PRAD	Prostate adenocarcinoma	496	52	100
READ	Rectum adenocarcinoma	92	10	308
SARC	Sarcoma	262	2	0
SKCM	Skin Cutaneous Melanoma	469	1	812
STAD	Stomach adenocarcinoma	414	36	174
TGCT	Testicular Germ Cell Tumors	137	0	165
THCA	Thyroid carcinoma	512	59	279
THYM	Thymoma	119	2	444
UCEC	Uterine Corpus Endometrial Carcinoma	181	13	89
UCS	Uterine Carcinosarcoma	57	0	89
UVM	Uveal Melanoma	79	0	0

Table S2. The sample size information.