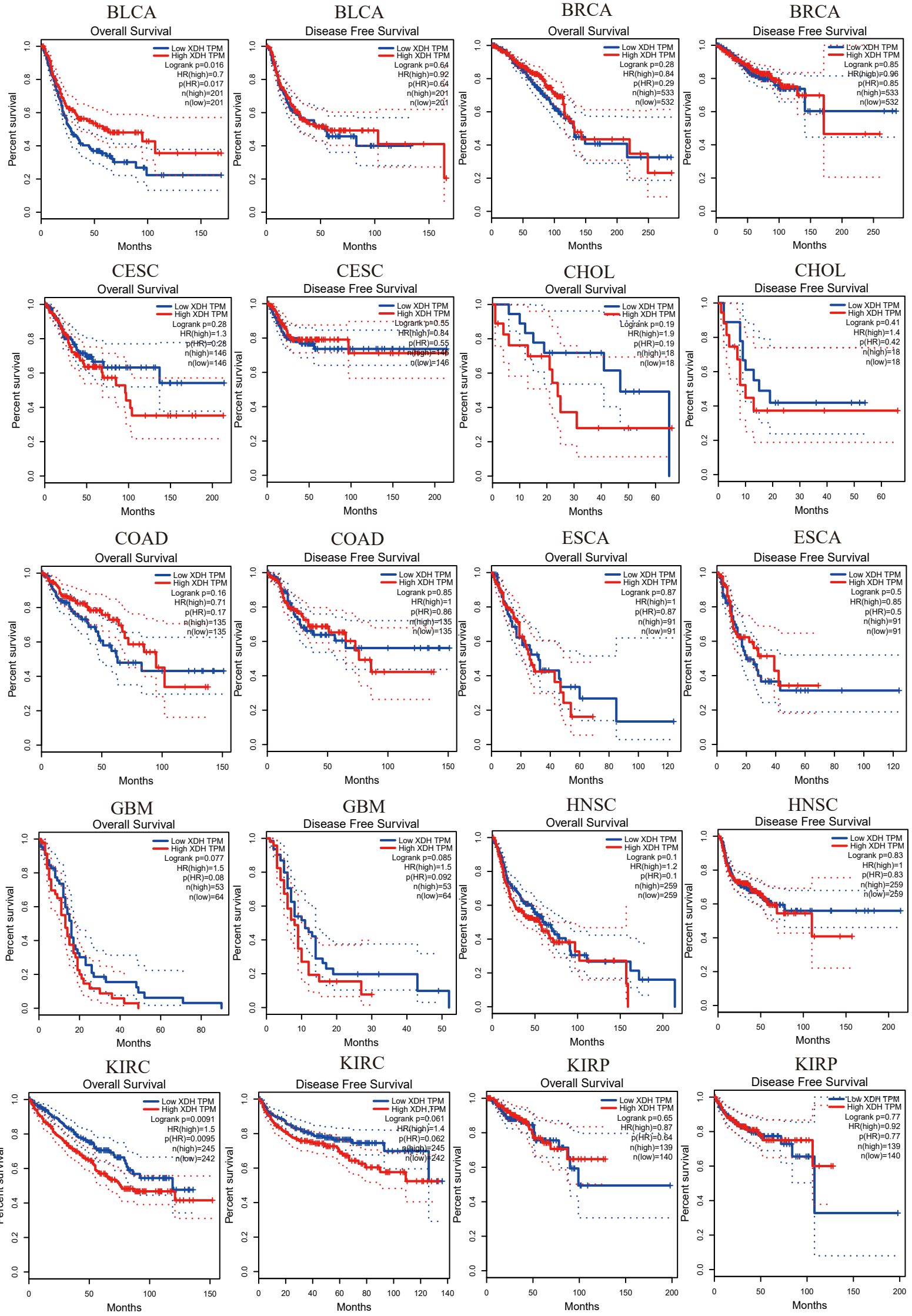
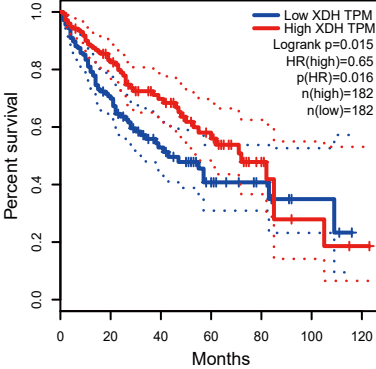


Supplementary Figure 1



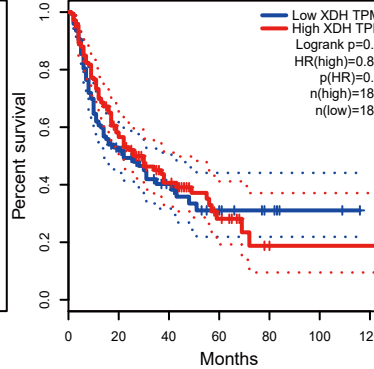
LIHC

Overall Survival



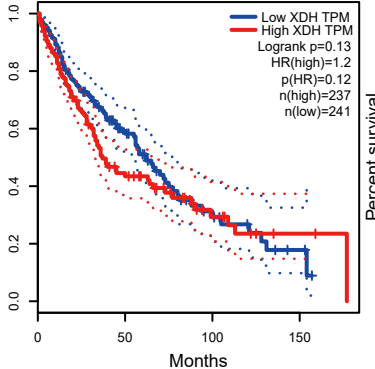
LIHC

Disease Free Survival



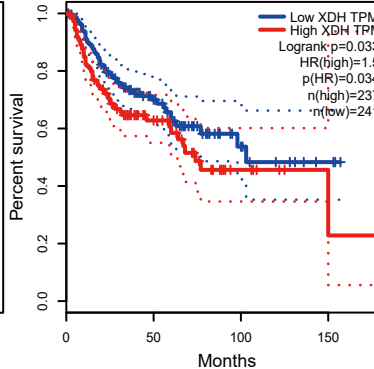
LUSC

Overall Survival



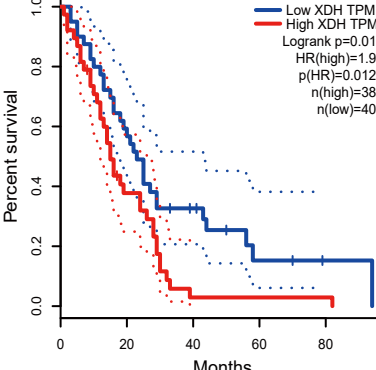
LUSC

Disease Free Survival



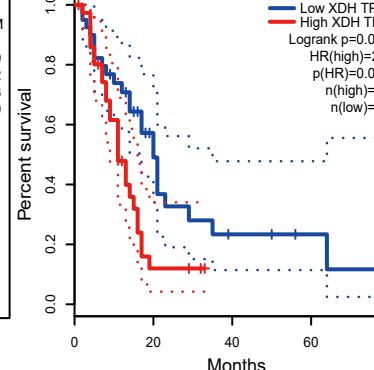
MESO

Overall Survival



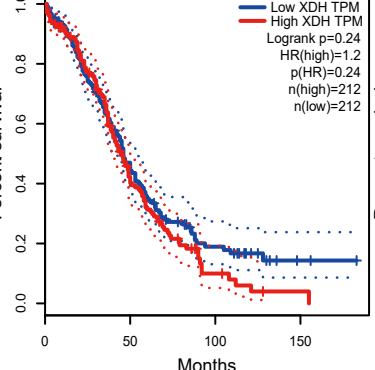
MESO

Disease Free Survival



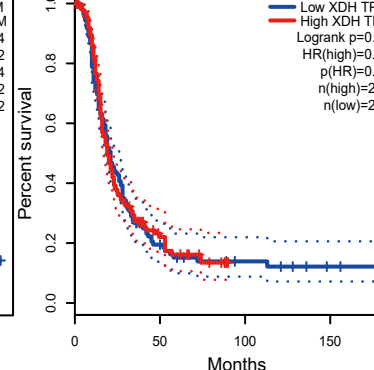
OV

Overall Survival



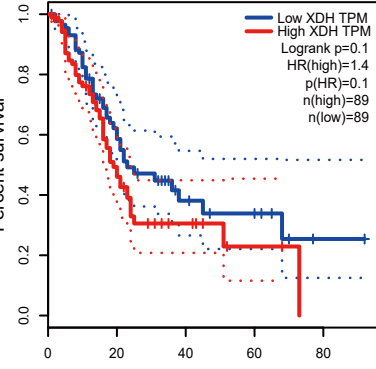
OV

Disease Free Survival



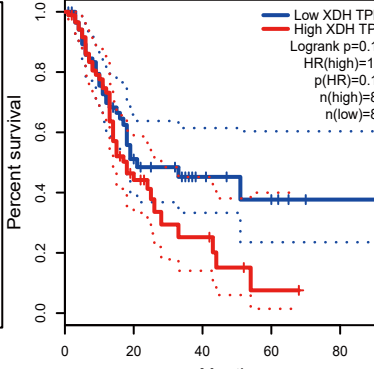
PAAD

Overall Survival



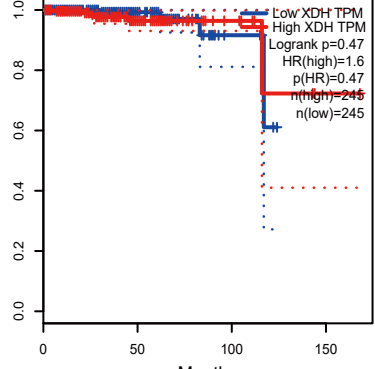
PAAD

Disease Free Survival



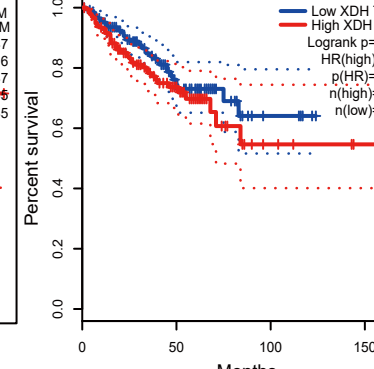
PRAD

Overall Survival



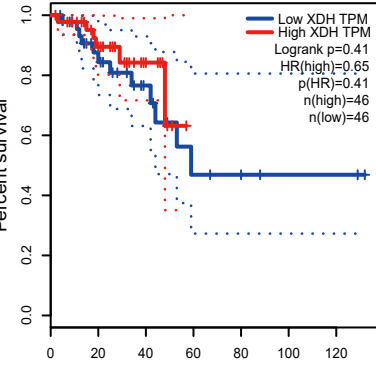
PRAD

Disease Free Survival



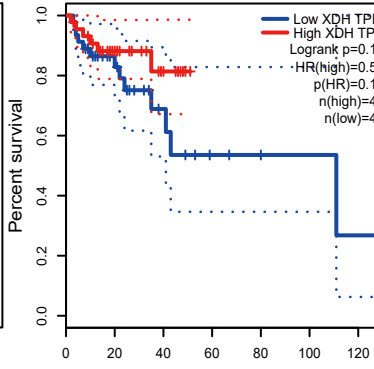
READ

Overall Survival



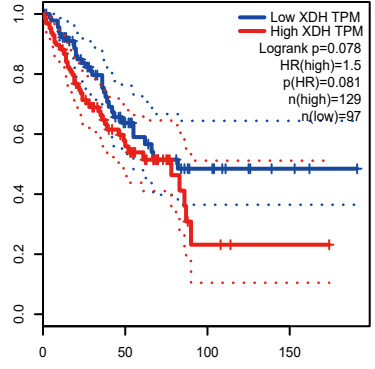
READ

Disease Free Survival



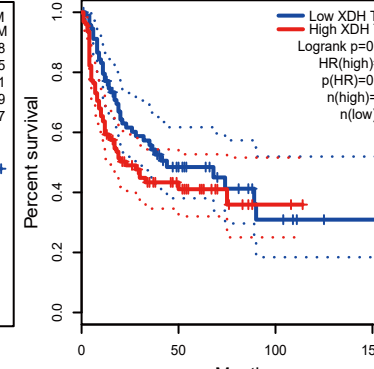
SARC

Overall Survival



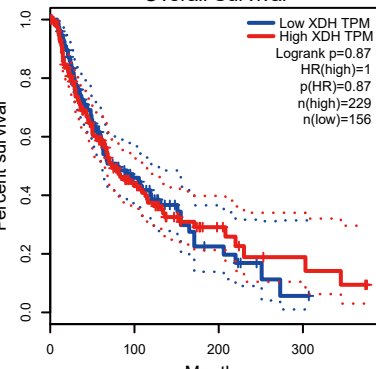
SARC

Disease Free Survival



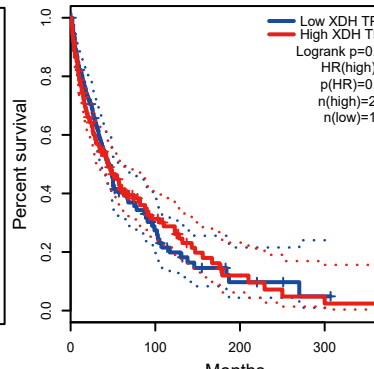
SKCM

Overall Survival



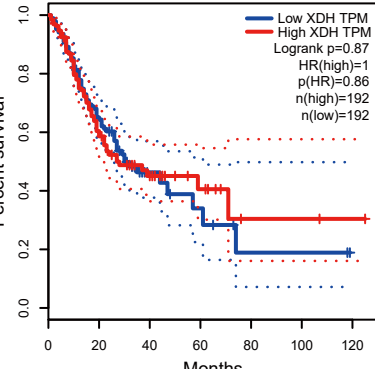
SKCM

Disease Free Survival



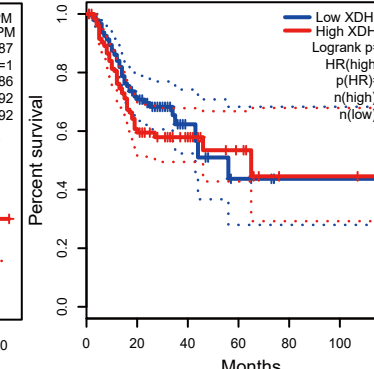
STAD

Overall Survival



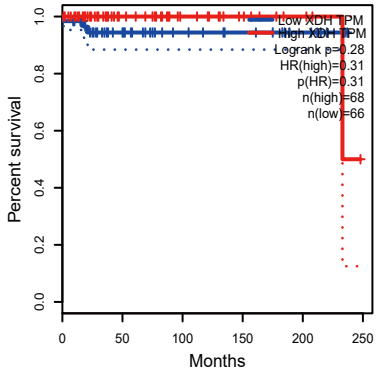
STAD

Disease Free Survival



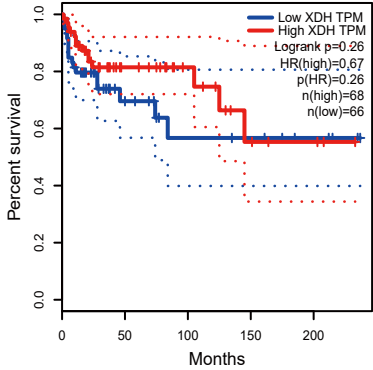
TGCS

Overall Survival



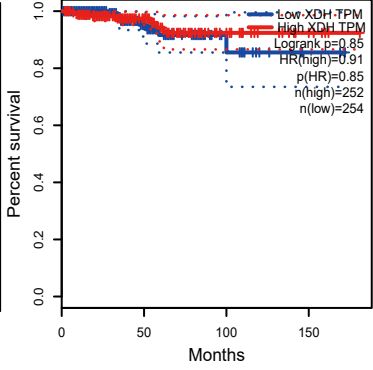
TGCS

Disease Free Survival



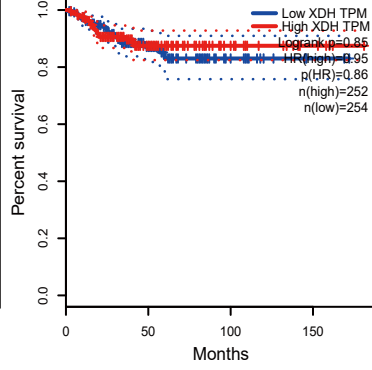
THCA

Overall Survival



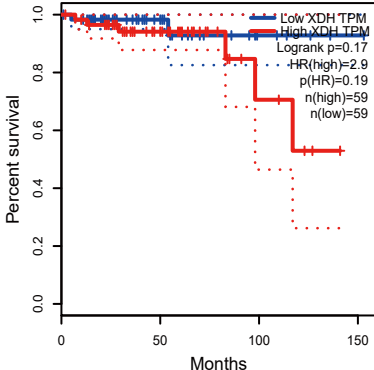
THCA

Disease Free Survival



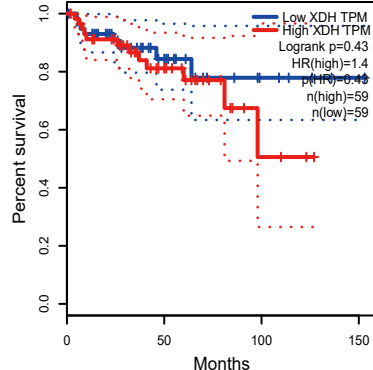
THYM

Overall Survival



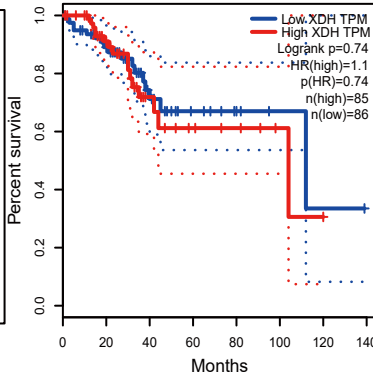
THYM

Disease Free Survival



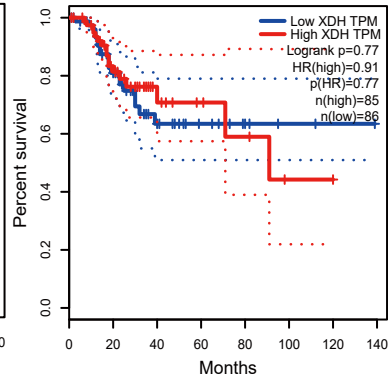
UCEC

Overall Survival



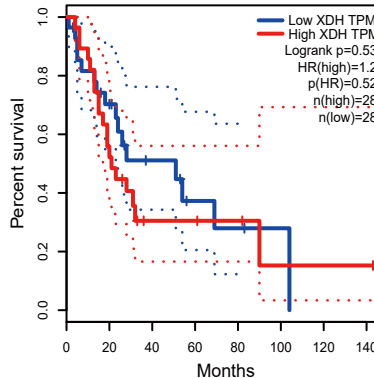
UCEC

Disease Free Survival



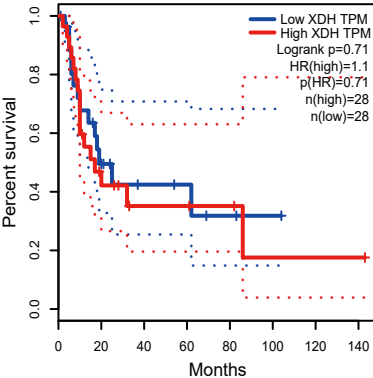
UCS

Overall Survival

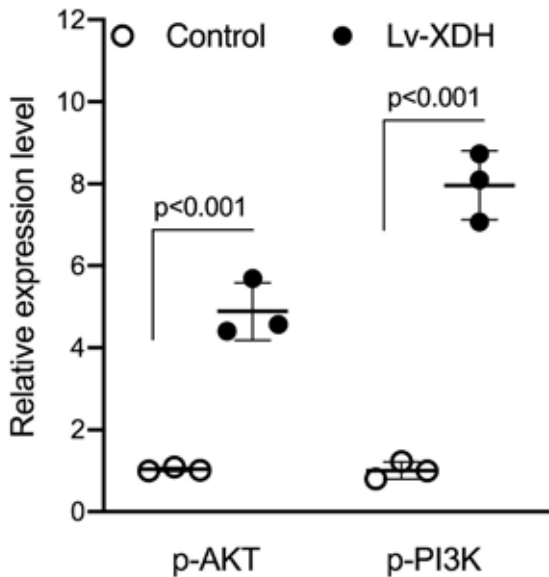


UCS

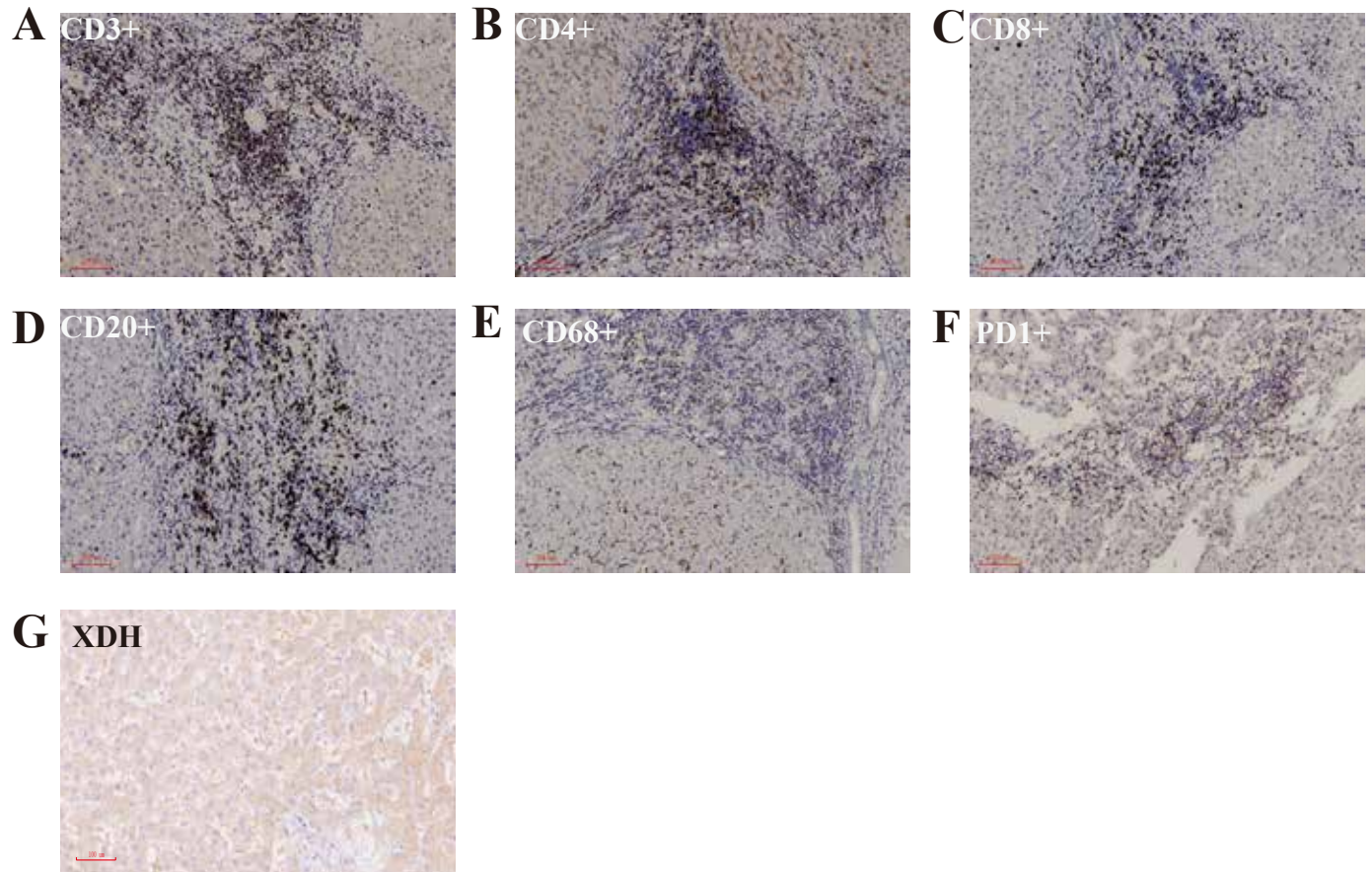
Disease Free Survival



Supplementary Figure 2



Supplementary Figure 3



Supplementary Table 1

Antibody	Source	Catalogue	Dilution
α -Tubulin	GeneTex Inc.	#GTX102078	1:1000
AKT	Cell Signaling Technology, Inc.	#9272	1:1000
p-AKT	Cell Signaling Technology, Inc.	#4060	1:1000
PI3K	Cell Signaling Technology, Inc.	#4249	1:1000
p-PI3K	Cell Signaling Technology, Inc.	#4228	1:1000
XDH	Santa Cruz Biotechnology	#sc-398548	1:1000

Supplementary Table 2

Markers	Antibody source	Species	Dilution
CD3	MXB Biotechnologies, MAB0740	Mouse monoclonal	1:200
CD4	MXB Biotechnologies, MAB-0251	Mouse monoclonal	1:200
CD8	MXB Biotechnologies, MAB-0021	Mouse monoclonal	1:200
CD20	MXB Biotechnologies, MAB-0669	Mouse monoclonal	1:200
CD68	MXB Biotechnologies, Kit-0026	Mouse monoclonal	1:200
PD-1	MXB Biotechnologies, MAB-0734	Mouse monoclonal	1:50

Supplementary Table 3

Cancer	Cancer Type	P value	Fold change	Rank (%)	Sample	Reference
Bladder	Superficial Bladder Cancer	9.05E-4	-2.181	5%	54	15161696
Breast	Male Breast Carcinoma	1.51E-4	-2.082	6%	593	TCGA
Colorectal	Rectosigmoid Adenocarcinoma	1.96E-8	-10.885	3%	237	TCGA
	Rectal Adenocarcinoma	1.60E-14	-4.390	8%	237	TCGA
	Colorectal Carcinoma	1.22E-12	-3.043	3%	82	20143136
	Colorectal Carcinoma	9.87E-10	-2.613	4%	105	20957034
	Colorectal Adenocarcinoma	1.07E-7	-2.158	5%	105	20957034
	Colon Adenoma	1.11E-6	-2.184	6%	64	18171984
Head and Neck Cancer	Oral Cavity Squamous Cell Carcinoma	6.20E-7	2.163	9%	79	21853135
Leukemia	T-Cell Acute Lymphoblastic Leukemia	1.14E-5	-2.597	10%	127	10663620
Liver	Hepatocellular Carcinoma	2.87E-9	-5.058	1%	75	17393520
	Hepatocellular Carcinoma	4.56E-9	-3.046	2%	43	21159642
	Hepatocellular Carcinoma	5.40E-50	-2.989	3%	445	21159642
	Hepatocellular Carcinoma	5.20E-12	-2.551	6%	197	12058060
Lung	Lung Adenocarcinoma	7.12E-17	2.229	1%	246	22327624
Lymphoma	Anaplastic Large Cell Lymphoma	2.10E-5	-2.379	9%	60	18492688

Supplementary Table 4

Cancer	Purity		B cell		CD8+ T cell		CD4+ T cell		Macrophage		Neutrophil		dendritic cell	
	rho	p	rho	p	rho	p	rho	p	rho	p	rho	p	rho	p
ACC (n=79)	-0.011	0.926	-0.053	0.657	-0.065	0.584	0.009	0.939	0.134	0.257	0.188	0.111	-0.246	0.036
BLCA (n=408)	-0.100	0.055	0.046	0.381	0.200	0.000	-0.005	0.928	-0.233	0.000	0.337	0.000	0.292	0.000
BRCA (n=1100)	-0.194	0.000	-0.159	0.000	0.081	0.010	0.017	0.602	0.032	0.315	0.204	0.000	0.094	0.003
BRCA-Basal (n=191)	-0.120	0.114	-0.197	0.009	0.137	0.071	-0.168	0.027	0.160	0.035	0.117	0.124	-0.093	0.224
BRCA-Her2 (n=82)	-0.020	0.863	-0.042	0.728	-0.049	0.680	0.035	0.771	0.062	0.604	0.266	0.024	0.273	0.020
BRCA-LumA (n=568)	-0.173	0.000	-0.130	0.003	0.093	0.034	0.012	0.782	0.039	0.371	0.157	0.000	0.069	0.117
BRCA-LumB (n=219)	-0.069	0.344	-0.119	0.101	0.184	0.011	0.027	0.706	0.094	0.195	0.109	0.134	0.020	0.783
CESC (n=306)	-0.208	0.000	0.043	0.478	0.184	0.002	0.008	0.898	-0.018	0.766	0.258	0.000	0.279	0.000
CHOL (n=36)	0.018	0.917	-0.039	0.822	0.126	0.471	-0.052	0.765	0.268	0.119	0.240	0.165	-0.079	0.652
COAD (n=458)	-0.153	0.002	0.085	0.161	0.186	0.002	0.003	0.961	-0.098	0.107	0.165	0.006	0.118	0.051
DLBC (n=48)	-0.201	0.202	-0.112	0.487	0.201	0.208	-0.088	0.583	0.074	0.646	0.103	0.522	-0.042	0.793
ESCA (n=185)	-0.138	0.065	-0.074	0.321	0.028	0.710	-0.019	0.797	-0.239	0.001	0.144	0.054	0.047	0.531
GBM (n=153)	-0.086	0.317	-0.011	0.895	0.125	0.146	0.030	0.731	0.096	0.267	0.158	0.065	0.294	0.000
HNSC (n=522)	-0.247	0.000	0.103	0.022	0.285	0.000	-0.023	0.606	-0.008	0.861	0.168	0.000	0.295	0.000
HNSC-HPV- (n=422)	-0.248	0.000	0.088	0.077	0.267	0.000	0.019	0.711	-0.027	0.594	0.206	0.000	0.282	0.000
HNSC-HPV+ (n=98)	-0.129	0.227	0.149	0.163	0.254	0.016	-0.089	0.408	0.016	0.879	0.077	0.473	0.312	0.003
KICH (n=66)	-0.245	0.048	0.075	0.551	0.011	0.929	0.248	0.046	0.085	0.502	0.184	0.141	0.299	0.015
KIRC (n=533)	-0.168	0.000	0.016	0.733	-0.004	0.924	-0.028	0.548	0.005	0.919	0.067	0.152	0.156	0.001
KIRP (n=290)	-0.166	0.007	0.060	0.333	0.218	0.000	0.121	0.052	-0.006	0.921	0.298	0.000	0.234	0.000
LGG (n=516)	0.010	0.829	-0.053	0.250	-0.084	0.066	0.141	0.002	0.046	0.320	0.145	0.001	0.151	0.001
LIHC (n=371)	0.119	0.026	-0.178	0.001	0.157	0.003	-0.104	0.053	0.009	0.871	-0.088	0.101	-0.179	0.001
LUAD (n=515)	-0.162	0.000	-0.069	0.126	0.018	0.693	0.061	0.174	0.051	0.254	0.230	0.000	0.332	0.000
LUSC (n=501)	-0.263	0.000	-0.236	0.000	0.025	0.579	-0.008	0.856	-0.062	0.177	0.152	0.001	0.153	0.001
MESO (n=87)	-0.117	0.283	0.401	0.000	0.076	0.491	0.109	0.320	-0.001	0.994	0.016	0.882	0.290	0.007
OV (n=303)	-0.180	0.004	0.086	0.176	0.164	0.010	-0.091	0.154	0.209	0.001	0.270	0.000	0.118	0.063
PAAD (n=179)	-0.116	0.129	0.255	0.001	-0.031	0.690	0.018	0.815	-0.046	0.551	0.054	0.483	0.073	0.342
PCPG (n=181)	-0.016	0.834	0.077	0.325	0.150	0.053	-0.164	0.034	0.150	0.054	0.202	0.009	0.139	0.073
PRAD (n=498)	-0.106	0.030	0.112	0.023	0.221	0.000	0.000	0.997	0.127	0.009	0.244	0.000	0.110	0.025
READ (n=166)	-0.113	0.184	0.188	0.076	0.171	0.106	-0.073	0.493	-0.049	0.647	0.081	0.445	0.099	0.354
SARC (n=260)	-0.202	0.002	0.029	0.652	0.299	0.000	-0.298	0.000	-0.084	0.193	-0.047	0.468	0.206	0.001
SKCM (n=471)	-0.053	0.258	-0.076	0.104	-0.024	0.607	-0.228	0.000	0.030	0.522	0.011	0.810	-0.059	0.206
SKCM-Metastasis (n=368)	-0.005	0.929	-0.030	0.574	0.039	0.460	-0.204	0.000	0.087	0.101	0.063	0.235	0.026	0.631
SKCM-Primary (n=103)	-0.243	0.013	-0.156	0.118	-0.127	0.204	-0.057	0.568	0.015	0.882	0.261	0.008	-0.157	0.115
STAD (n=415)	-0.107	0.037	0.013	0.795	-0.151	0.003	-0.012	0.809	-0.156	0.002	0.055	0.286	-0.071	0.166
TGCT (n=150)	0.170	0.039	0.005	0.949	-0.093	0.262	0.177	0.032	0.032	0.700	0.045	0.587	-0.109	0.190
THCA (n=509)	-0.056	0.217	-0.175	0.000	0.009	0.849	0.055	0.229	-0.189	0.000	0.520	0.000	0.627	0.000
THYM (n=120)	0.127	0.174	-0.229	0.014	-0.384	0.000	-0.407	0.000	0.146	0.119	-0.278	0.003	-0.371	0.000
UCEC (n=545)	-0.063	0.283	-0.273	0.010	-0.071	0.512	-0.005	0.966	-0.379	0.000	0.069	0.525	0.309	0.003
UCS (n=57)	-0.203	0.140	0.214	0.124	-0.195	0.162	0.247	0.074	0.349	0.011	0.395	0.003	0.167	0.232
UVM (n=80)	0.022	0.848	-0.123	0.287	0.137	0.234	-0.146	0.204	0.107	0.355	0.224	0.051	-0.206	0.072

Supplementary Table 5

Symbol	Name	Function
ANGPTL1	angiopoietin-like 1	Cytokine Receptors
CAT	catalase	Cytokines
CD320	CD320 molecule	Cytokines
HDAC1	histone deacetylase 1	Adaptive immunity
HDGF	hepatoma-derived growth factor	Cytokines
HRG	histidine-rich glycoprotein	Adaptive immunity
HSPA4	heat shock 70kDa protein 4	Antigen Processing and Presentation
KNG1	kininogen 1	Adaptive immunity
MAPK3	mitogen-activated protein kinase 3	Natural Killer Cell Cytotoxicity
MMP12	matrix metalloproteinase 12	Adaptive immunity
NDRG1	N-myc downstream regulated 1	Adaptive immunity
PGF	placental growth factor	Cytokines
PIK3R1	phosphoinositide-3-kinase, regulatory subunit 1	TCR signaling Pathway; Natural Killer Cell Cytotoxicity
PTK2	PTK2 protein tyrosine kinase 2	Adaptive immunity
RBP4	retinol binding protein 4, plasma	Adaptive immunity
RFXANK	regulatory factor X-associated ankyrin-containing protein	Antigen Processing and Presentation
SPP1	secreted phosphoprotein 1	Cytokines
TMPRSS6	transmembrane protease, serine 6	Adaptive immunity
TMSB10	thymosin beta 10	Adaptive immunity
TPT1	tumor protein, translationally-controlled 1	Adaptive immunity