

**Table S5. The proteins whose expression levels are significantly correlated with immune cytolytic activity and PD-L1 expression levels in TCGA-GC cohort.**

Immune cytolytic activity		
TCGA		
Cancer-associated pathway	<i>p</i> -value	PCC
Calcium signaling	0.0038	0.142
ECM receptor interaction	0.0003	0.178
Focal adhesion	3.52E-06	0.226
mTOR signaling	1.65E-06	0.233
PI3K-AKT signaling	1.66E-09	0.292
MAPK signaling	1.55E-09	0.292
p53 signaling	4.43E-10	0.301
VEGF signaling	0	0.423
HIF-1 signaling	0	0.476
Apoptosis	0	0.550
Jak-STAT signaling	0	0.618
Cytokine-cytokine receptor interaction	0	0.697

  

ACRG		
Cancer-associated pathway	<i>p</i> -value	PCC
TGF- $\beta$ signaling	0.0349	0.122
Calcium signaling	0.0007	0.196
PI3K-AKT signaling	2.88E-05	0.240
VEGF signaling	3.00E-06	0.267
cAMP signaling	2.14E-06	0.271
p53 signaling	1.01E-06	0.279
MAPK signaling	3.01E-08	0.315
HIF-1 signaling	9.59E-12	0.383
Apoptosis	0	0.543
Jak-STAT signaling	0	0.588
Cytokine-cytokine receptor interaction	0	0.620

  

PD-L1 exprssion		
TCGA		
Cancer-associated pathway	<i>p</i> -value	PCC
Adeherens junction	0.0191	0.115
Cell cycle	0.0015	0.155
ECM receptor interaction	7.17E-05	0.194
Focal adhesion	1.34E-05	0.212
mTOR signaling	1.14E-05	0.214
PI3K-AKT signaling	1.77E-08	0.273
MAPK signaling	1.42E-08	0.275
VEGF signaling	6.71E-10	0.298
p53 signaling	1.86E-15	0.377
HIF-1 signaling	0	0.473
Apoptosis	0	0.540
Cytokine-cytokine receptor interaction	0	0.611
Jak-STAT signaling	0	0.618

## ACRG

Cancer-associated pathway	<i>p</i> -value	PCC
cAMP signaling	0.0329	0.123
Estrogen signaling pathway	0.0051	0.161
Focal adhesion	0.0027	0.173
ECM receptor interaction	0.0011	0.188
Cell cycle	0.0002	0.215
PI3K-AKT signaling	3.55E-09	0.334
MAPK signaling	8.32E-11	0.366
VEGF signaling	0	0.447
p53 signaling	0	0.515
HIF-1 signaling	0	0.680
Apoptosis	0	0.703
Jak-STAT signaling	0	0.773
Cytokine-cytokine receptor interaction	0	0.776