

Table SI. Characteristics of the included datasets.

Dataset ID	GPL ID	Total samples	Tumor	Control
GSE46602	GPL570	50	36	14
GSE70768	GPL10558	186	113	73
GSE116918	GPL25318	248	248	-
GSE70769	GPL10558	94	94	-
TCGA-PRAD	-	540	51	489
GSE78220	GPL11154	27	27	-
IMvigor210	-	298	298	-

TCGA, The Cancer Genome Atlas; PRAD, prostate adenocarcinoma.

Table SII. List of antibodies.

Name	Company	Catalogue nos.
p-PI3K	Cell Signaling Technology, Inc.	17366S
PI3K	ProteinTech Group, Inc.	20584-1-AP
p-AKT	ProteinTech Group, Inc.	66444-1-Ig
AKT	ProteinTech Group, Inc.	60203-2-Ig
LTBP2	Abcam	ab158832
GAPDH	Abcam	ab8245
Goat Anti-Rabbit IgG H&L (HRP)	Abcam	ab6721

p-, phosphorylated; LTBP2, latent transforming growth factor  $\beta$ -binding protein 2.

Table SIII. Correlation between LTBP2 expression with immune-cell marker genes.

Gene	Immune cells	Biomarker	Correlation	P-value
LTBP2	B cells	CD19	0.256066035	<0.001
LTBP2	B cells	CD79A	0.300137142	<0.001
LTBP2	CD8 <sup>+</sup> T cells	CD8A	0.45089881	<0.001
LTBP2	CD8 <sup>+</sup> T cells	CD8B	0.246745346	<0.001
LTBP2	CD4 <sup>+</sup> T cells	CD4	0.665388512	<0.001
LTBP2	M1 macrophages	NOS2	0.289922592	<0.001
LTBP2	M1 macrophages	IRF5	0.460371442	<0.001
LTBP2	M1 macrophages	PTGS2	0.312092716	<0.001
LTBP2	M2 macrophages	CD163	0.539329454	<0.001
LTBP2	M2 macrophages	VSIG4	0.641037738	<0.001
LTBP2	M2 macrophages	MS4A4A	0.5545801	<0.001
LTBP2	Neutrophils	CEACAM8	0.030410405	0.4979 <sup>a</sup>
LTBP2	Neutrophils	ITGAM	0.702792959	<0.001
LTBP2	Neutrophils	CCR7	0.423993143	<0.001
LTBP2	Dendritic cells	HLA-DPB1	0.521451385	<0.001
LTBP2	Dendritic cells	HLA-DQB1	0.459882077	<0.001
LTBP2	Dendritic cells	HLA-DRA	0.601806118	<0.001
LTBP2	Dendritic cells	HLA-DPA1	0.624114832	<0.001
LTBP2	Dendritic cells	CD1C	0.529686084	<0.001
LTBP2	Dendritic cells	NRP1	0.335062607	<0.001
LTBP2	Dendritic cells	ITGAX	0.536509742	<0.001

<sup>a</sup>P>0.05. LTBP2, latent transforming growth factor  $\beta$ -binding protein 2.