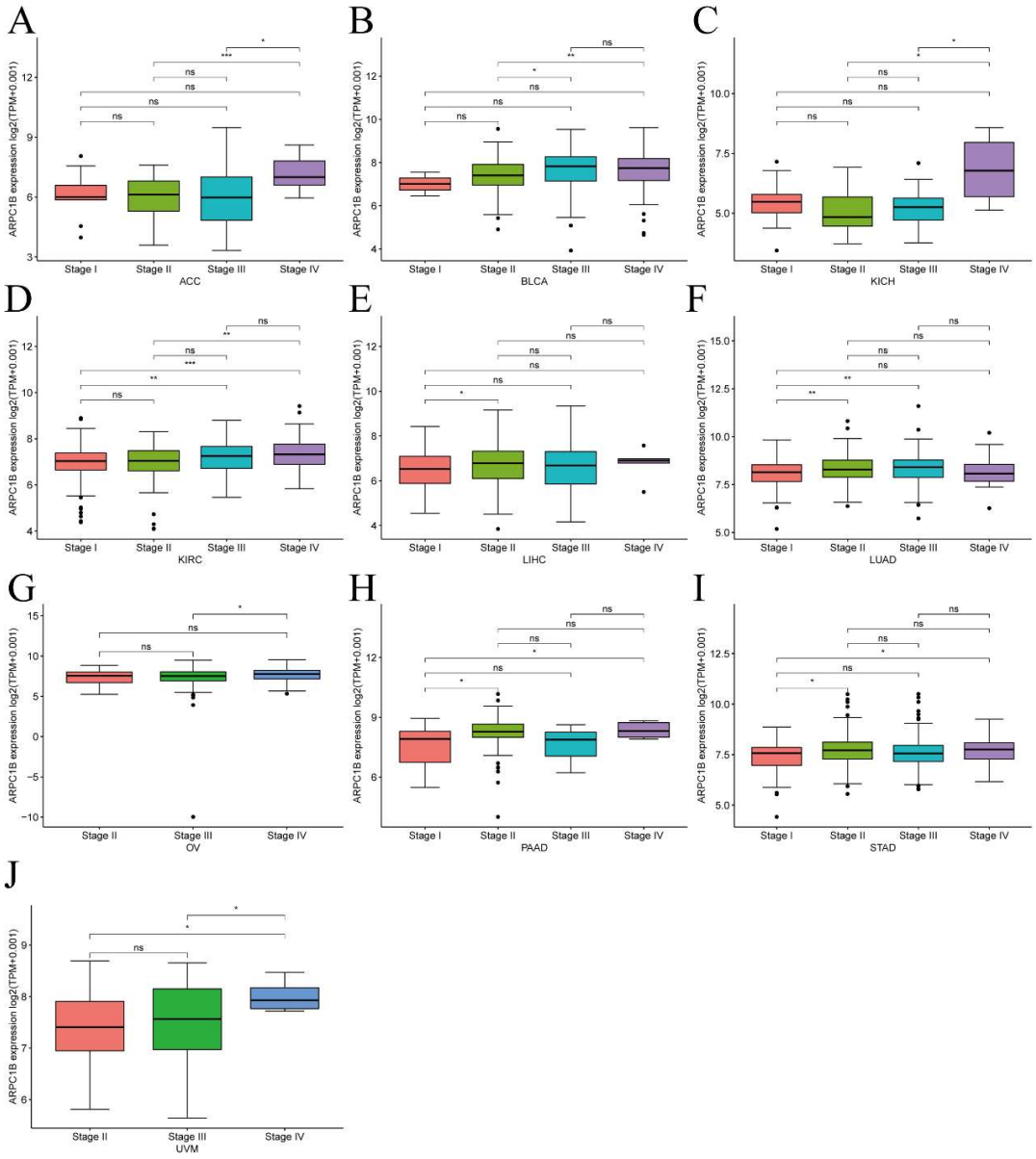
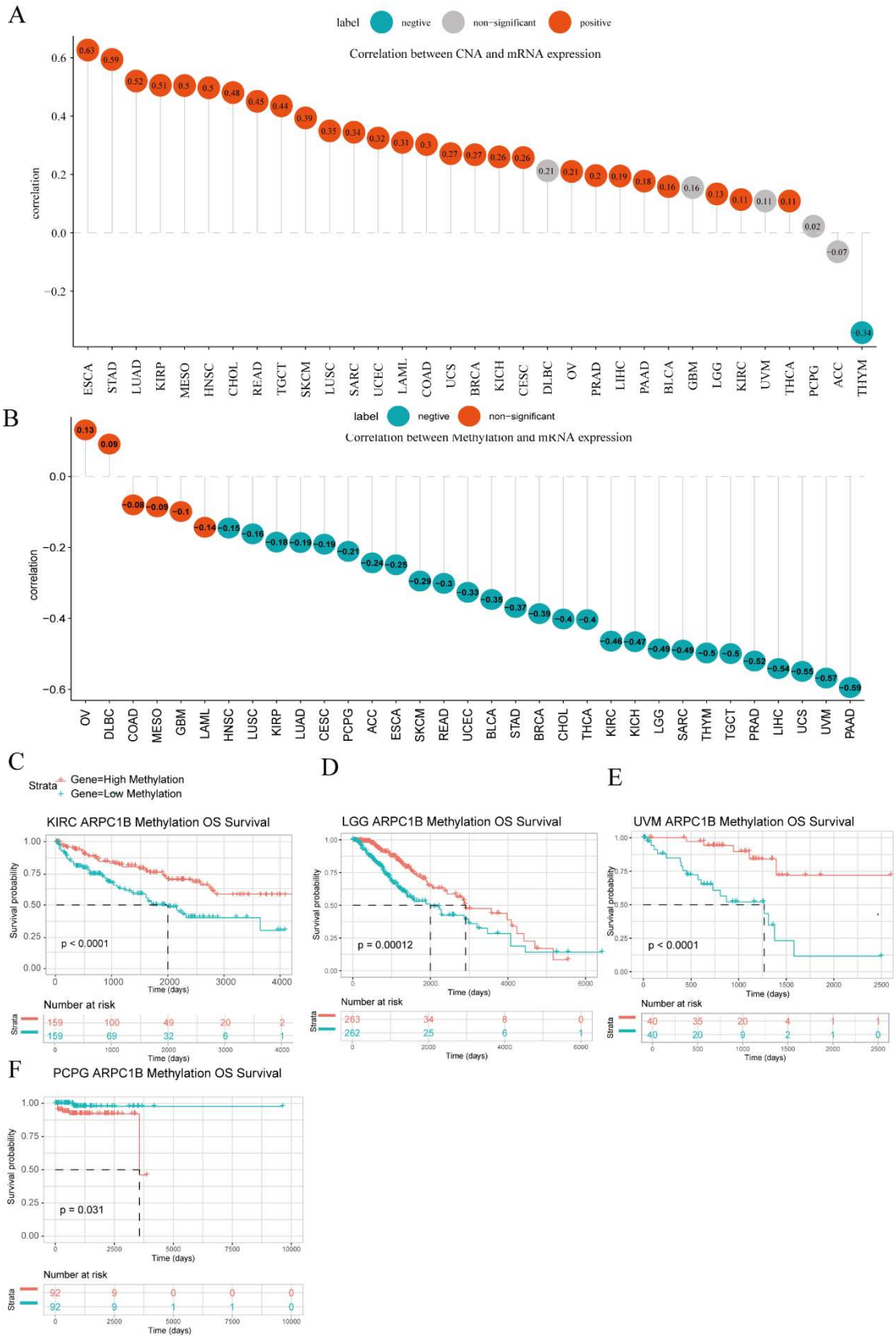
Supplementary Material

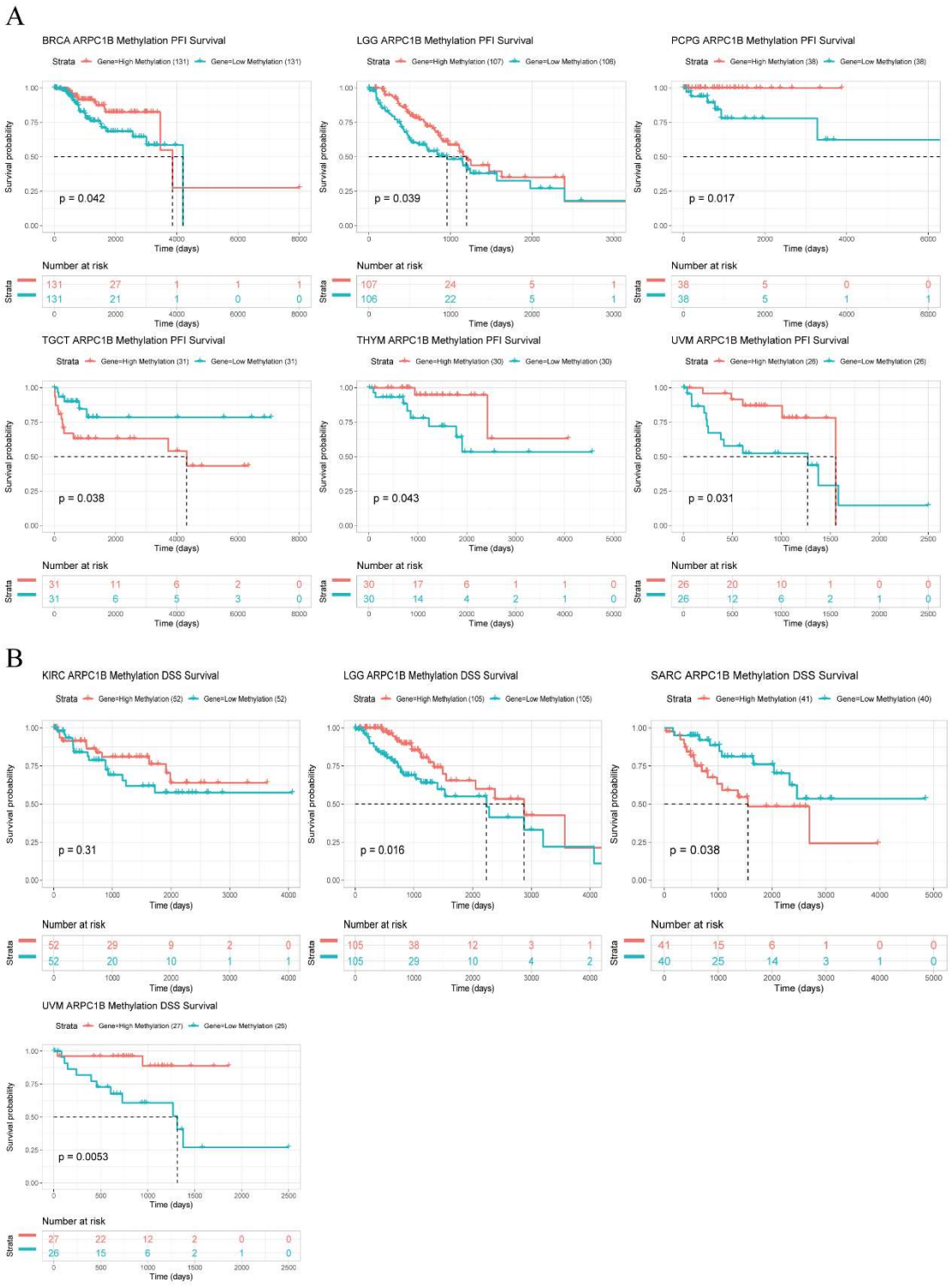


Supplementary Figure 1: Correlation of ARPC1B expression and clinicopathological parameters (stage) across different cancer types. (A) ACC. (B) BLCA. (C) KICH. (D) KIRC. (E) LIHC. (F) LUAD. (G) OV. (H) PAAD. (I) STAD. (J) UVM. Significance markers: ns, $P \geq 0.05$; $^{*}P < 0.05$; $^{**}P < 0.01$; $^{***}P < 0.001$. ARPC1B: Actin-related protein 2/3 complex subunit 1B; ACC: adrenocortical carcinoma; BLCA: bladder urothelial carcinoma; KICH: kidney chromophobe; KIRC: kidney renal clear cell carcinoma; LIHC: liver hepatocellular carcinoma; LUAD: lung adenocarcinoma; OV: ovarian serous cystadenocarcinoma; PAAD: pancreatic adenocarcinoma; STAD: stomach adenocarcinoma; UVM: uveal melanoma.



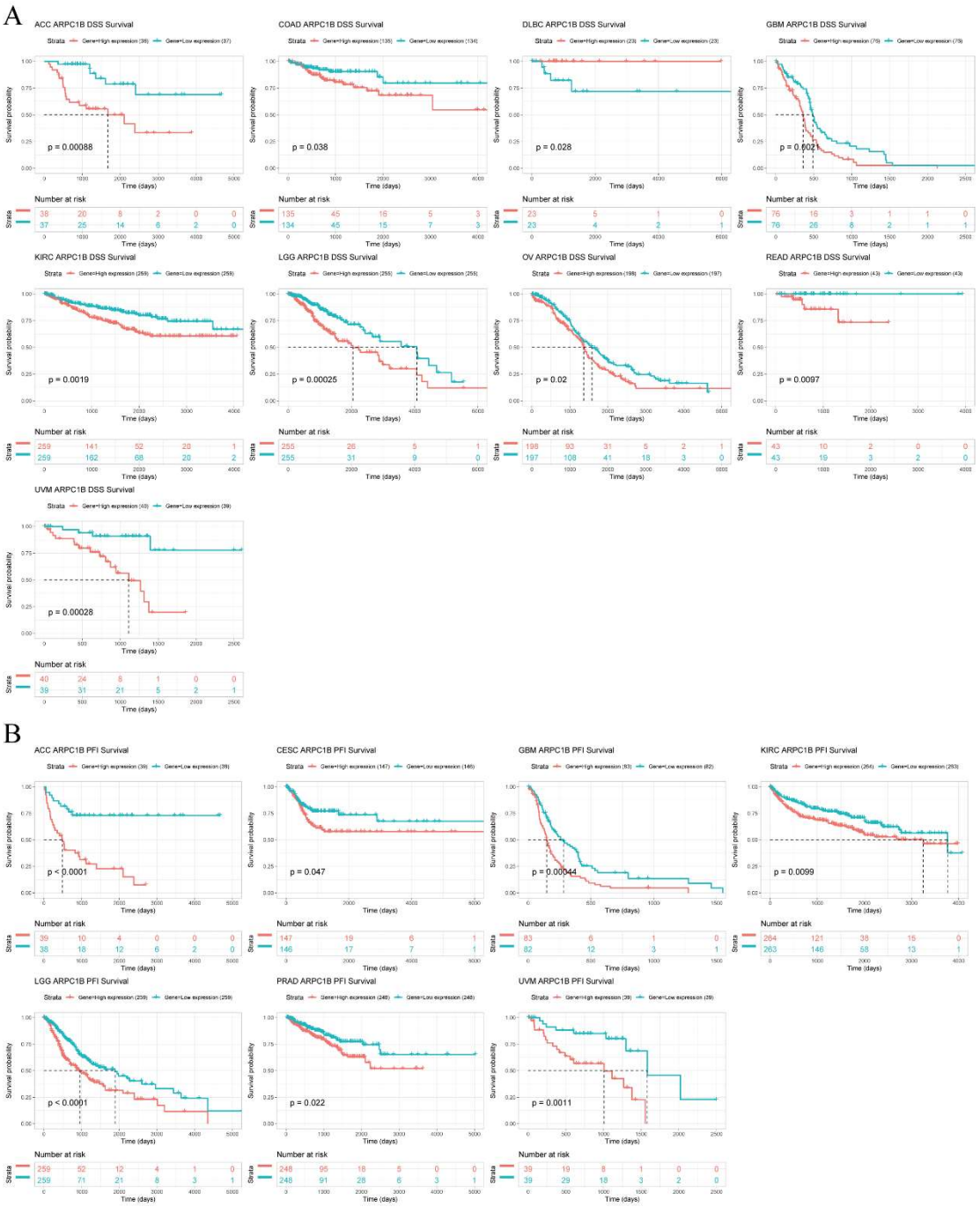
Supplementary Figure 2: Analysis of ARPC1B gene's CNA and methylation correlation in pan-cancer and genetic characteristics in specific cancer type. (A) The correlation between ARPC1B

gene and CNA in pan-cancer (various types of cancers). (B) The correlation between ARPC1B gene and methylation levels in pan-cancer. (C) Comparison of Kaplan-Meier survival curves between high and low methylation of ARPC1B in low-grade KIRC. (D) Comparison of Kaplan-Meier survival curves between high and low methylation of ARPC1B in low-grade LGG. (E) Comparison of Kaplan-Meier survival curves between high and low methylation of ARPC1B in low-grade UVM. (F) Comparison of Kaplan-Meier survival curves between high and low methylation of ARPC1B in low-grade PCPG. ARPC1B: Actin-related protein 2/3 complex subunit 1B; ACC: adrenocortical carcinoma; BLCA: bladder urothelial carcinoma; BRCA: breast invasive carcinoma; CESC: cervical squamous cell carcinoma; CHOL: cholangiocarcinoma; COAD: colon adenocarcinoma; DLBC: lymphoid neoplasm diffuses large B cell lymphoma; ESCA: esophageal carcinoma; GBM: glioblastoma multiforme; HNSC: head and neck squamous cell carcinoma; KICH: kidney chromophobe; KIRC: kidney renal clear cell carcinoma; KIRP: kidney renal papillary cell carcinoma; LAML: acute myeloid leukemia; LGG: brain lower grade glioma; LIHC: liver hepatocellular carcinoma; LUAD: lung adenocarcinoma; LUSC: lung squamous cell carcinoma; MESO: mesothelioma; OV: ovarian serous cystadenocarcinoma; PAAD: pancreatic adenocarcinoma; PCPG: pheochromocytoma and paraganglioma; PRAD: prostate adenocarcinoma; READ: rectum adenocarcinoma; SARC: sarcoma; SKCM: skin cutaneous melanoma; STAD: stomach adenocarcinoma; TGCT: testicular germ cell tumors; THCA: thyroid carcinoma; THYM: thymoma; UCEC: uterine corpus endometrial carcinoma; UCS: uterine carcinosarcoma; UVM: uveal melanoma; CNA: copy number alteration.



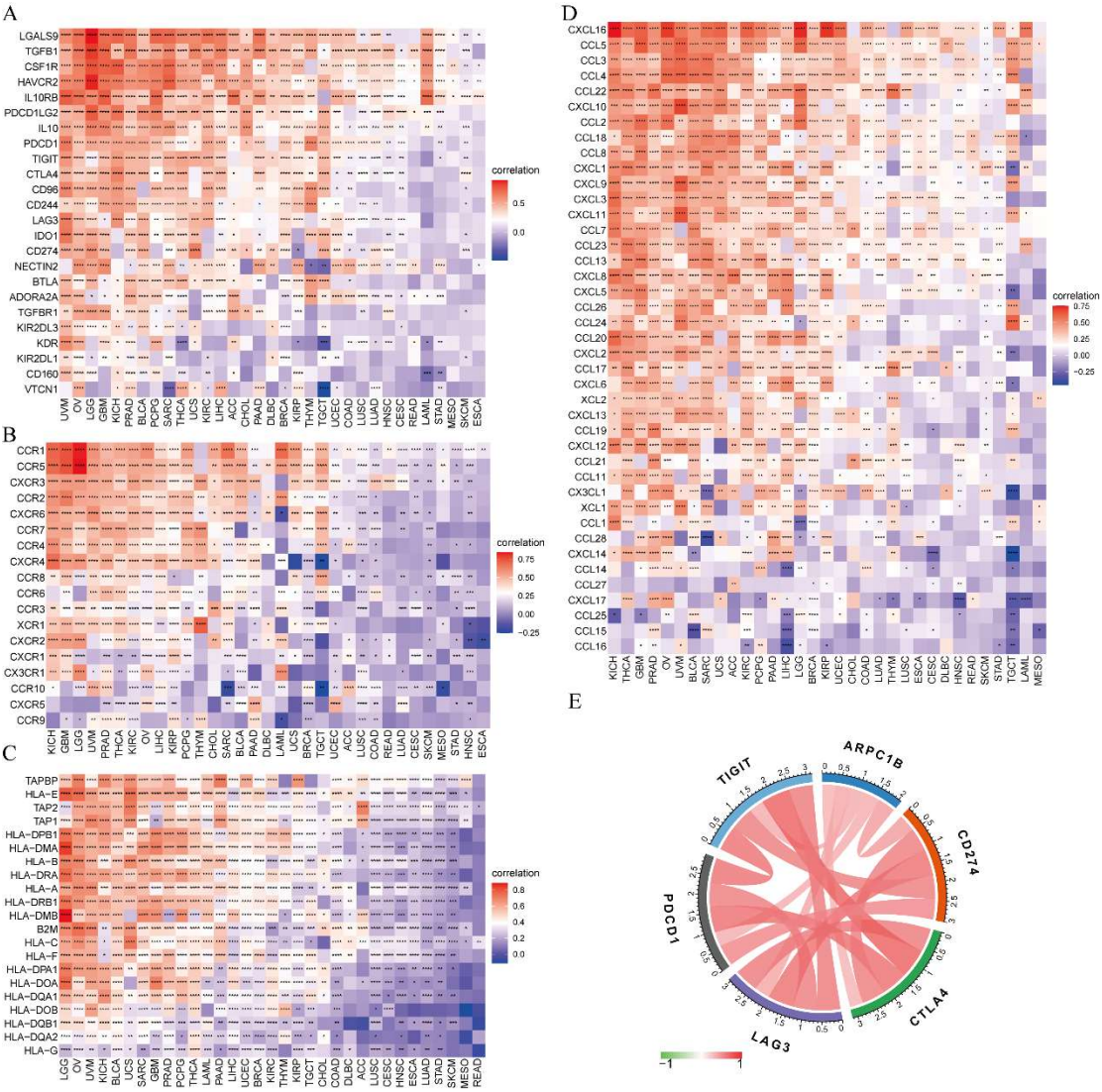
Supplementary Figure 3: Prognostic analysis of ARPC1B methylation. (A) Comparison of Kaplan-Meier PFI curves between high and low methylation of ARPC1B. (B) Comparison of Kaplan-Meier DSS curves between high and low methylation of ARPC1B. DSS: disease-specific survival; PFI: progression-free survival; ARPC1B: Actin-related protein 2/3 complex subunit 1B; BRCA: breast invasive carcinoma; KIRC: kidney renal clear cell carcinoma; LGG: brain lower

grade glioma; PCPG: pheochromocytoma and paraganglioma; SARC: sarcoma; TGCT: testicular germ cell tumors; THYM: thymoma; UVM: uveal melanoma.



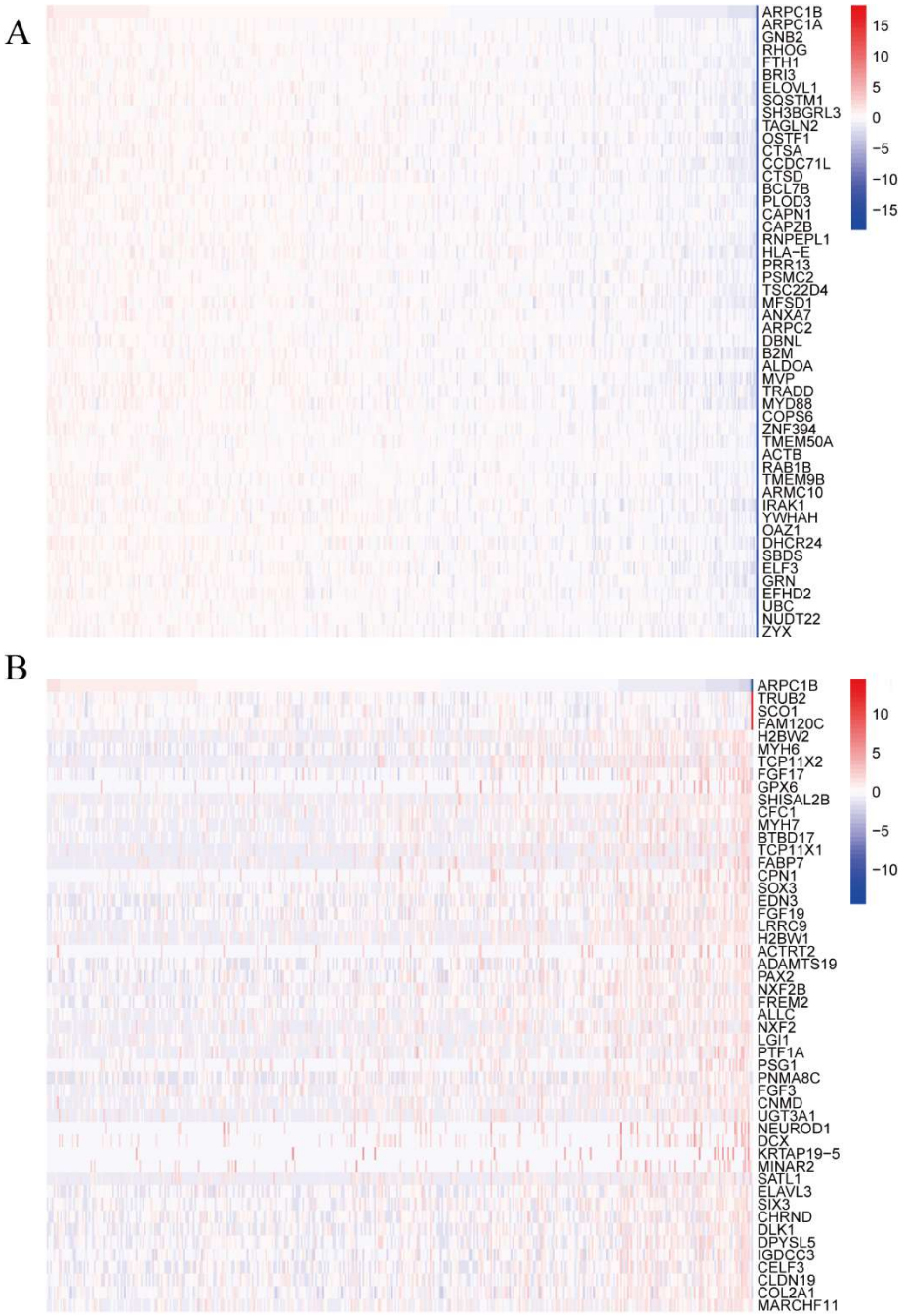
Supplementary Figure 4: Pan-cancer prognostic analysis of ARPC1B. (A) DSS prognostic analysis of ARPC1B. (B) PFI prognostic analysis of ARPC1B. DSS: disease-specific survival; PFI: progression-free survival; ARPC1B: Actin-related protein 2/3 complex subunit 1B; ACC: adrenocortical carcinoma; CESC: cervical squamous cell carcinoma; COAD: colon

adenocarcinoma; DLBC: lymphoid neoplasm diffuses large B cell lymphoma; GBM: glioblastoma multiforme; KIRC: kidney renal clear cell carcinoma; LGG: brain lower grade glioma; OV: ovarian serous cystadenocarcinoma; PRAD: prostate adenocarcinoma; READ: rectum adenocarcinoma; UVM: uveal melanoma.



Supplementary Figure 5: Analysis of the correlation between ARPC1B and immune suppressive genes as well as immune checkpoint genes. (A) Analysis of the correlation between ARPC1B and immune suppressor genes (various tumor types). (B) Positive correlation between ARPC1B expression and HLA-E and chemokines expression (pan-cancer Perspective). (C) Analysis of the positive correlation between ARPC1B and chemokine receptors expression. (D) Study on the

association between ARPC1B and immune suppression state. (E) Analysis of the correlation between ARPC1B and immune checkpoint genes in OV. OV: ovarian cancer; ARPC1B: Actin-related protein 2/3 complex subunit 1B; ACC: adrenocortical carcinoma; BLCA: bladder urothelial carcinoma; BRCA: breast invasive carcinoma; CESC: cervical squamous cell carcinoma; CHOL: cholangiocarcinoma; COAD: colon adenocarcinoma; DLBC: lymphoid neoplasm diffuses large B cell lymphoma; ESCA: esophageal carcinoma; GBM: glioblastoma multiforme; HNSC: head and neck squamous cell carcinoma; KICH: kidney chromophobe; KIRC: kidney renal clear cell carcinoma; KIRP: kidney renal papillary cell carcinoma; LAML: acute myeloid leukemia; LGG: brain lower grade glioma; LIHC: liver hepatocellular carcinoma; LUAD: lung adenocarcinoma; LUSC: lung squamous cell carcinoma; MESO: mesothelioma; OV: ovarian serous cystadenocarcinoma; PAAD: pancreatic adenocarcinoma; PCPG: pheochromocytoma and paraganglioma; PRAD: prostate adenocarcinoma; READ: rectum adenocarcinoma; SARC: sarcoma; SKCM: skin cutaneous melanoma; STAD: stomach adenocarcinoma; TGCT: testicular germ cell tumors; THCA: thyroid carcinoma; THYM: thymoma; UCEC: uterine corpus endometrial carcinoma; UCS: uterine carcinosarcoma; UVM: uveal melanoma.



Supplementary Figure 6: Gene correlation analysis selected from the TCGA database. (A) Top 50 positively correlated genes selected from the TCGA database. (B) Top 50 negatively correlated genes selected from the TCGA database. TCGA: the cancer genome atlas.

Supplement Table 1

Abbreviations	Full name
ACC	Adrenocortical carcinoma
BLCA	Bladder urothelial carcinoma
BRCA	Breast invasive carcinoma
CESC	Cervical squamous cell carcinoma and endocervical adenocarcinoma
CHOL	Cholangiocarcinoma
COAD	Colon adenocarcinoma
DLBC	Lymphoid neoplasm diffuse large B-cell lymphoma
ESCA	Esophageal carcinoma
GBM	Glioblastoma multiforme
HNSC	Head and neck squamous cell carcinoma
KICH	Kidney chromophobe
KIRC	Kidney renal clear cell carcinoma
KIRP	Kidney renal papillary cell carcinoma
LAML	Acute myeloid leukemia
LGG	Brain lower grade glioma
LIHC	Liver hepatocellular carcinoma
LUAD	Lung adenocarcinoma
LUSC	Lung squamous cell carcinoma
MESO	Mesothelioma
OV	Ovarian serous cystadenocarcinoma
PAAD	Pancreatic adenocarcinoma
PCPG	Pheochromocytoma and paraganglioma
PRAD	Prostate adenocarcinoma
READ	Rectum adenocarcinoma
SARC	Sarcoma
SKCM	Skin cutaneous melanoma
STAD	Stomach adenocarcinoma
TGCT	Testicular germ cell tumor
THCA	Thyroid carcinoma
THYM	Thymoma
UCEC	Uterine corpus endometrial carcinoma
UCS	Uterine carcinosarcoma
UVM	Uveal melanoma