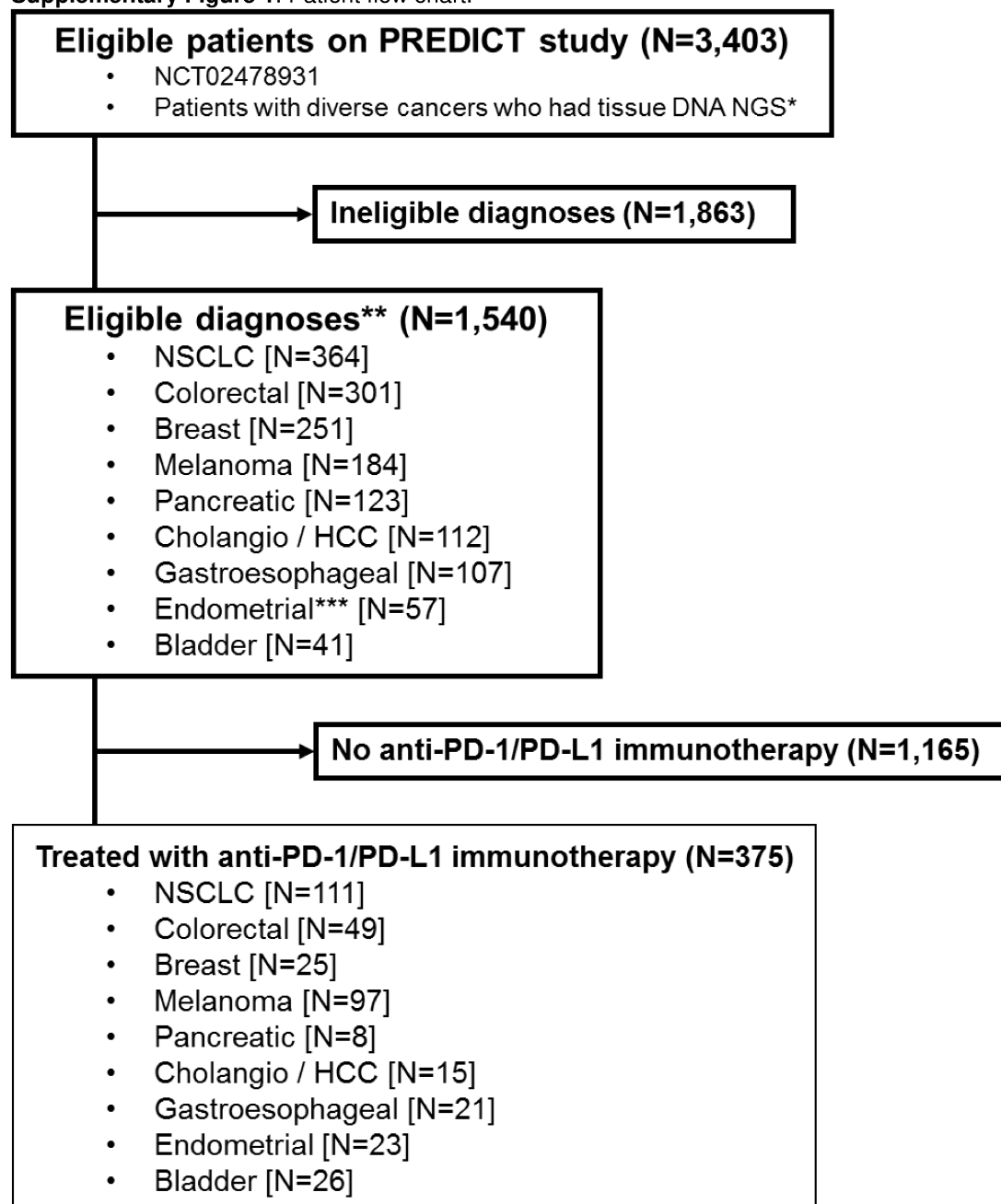


SUPPLEMENTARY FILES

Supplementary Figure 1. Patient flow chart.



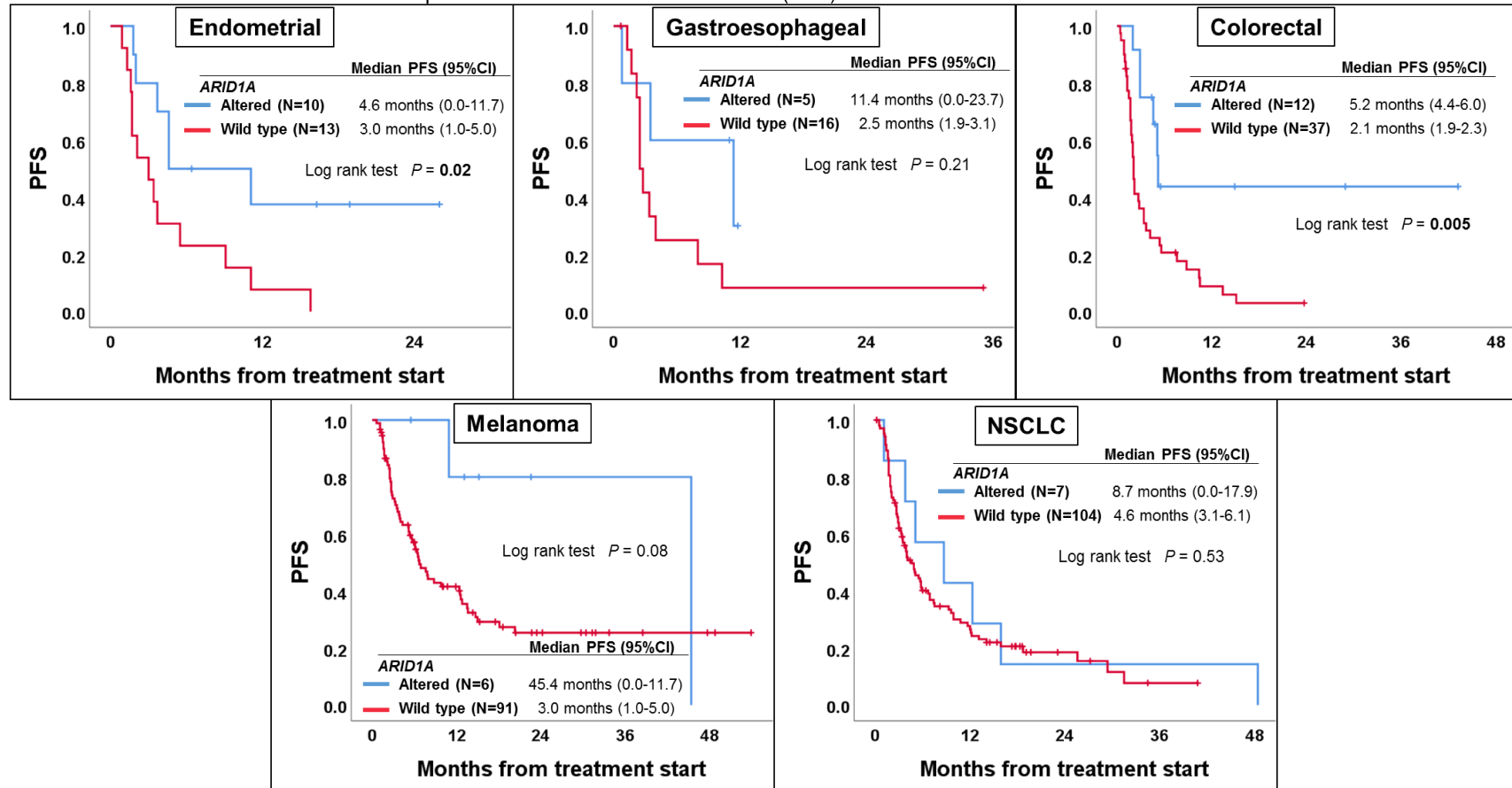
* NGS by Foundation Medicine, Inc.

** These 9 types of cancer harbor *ARID1A* alterations with frequency >5.0%.

*** Includes clear-cell carcinoma which is a rare form of endometrial cancer.

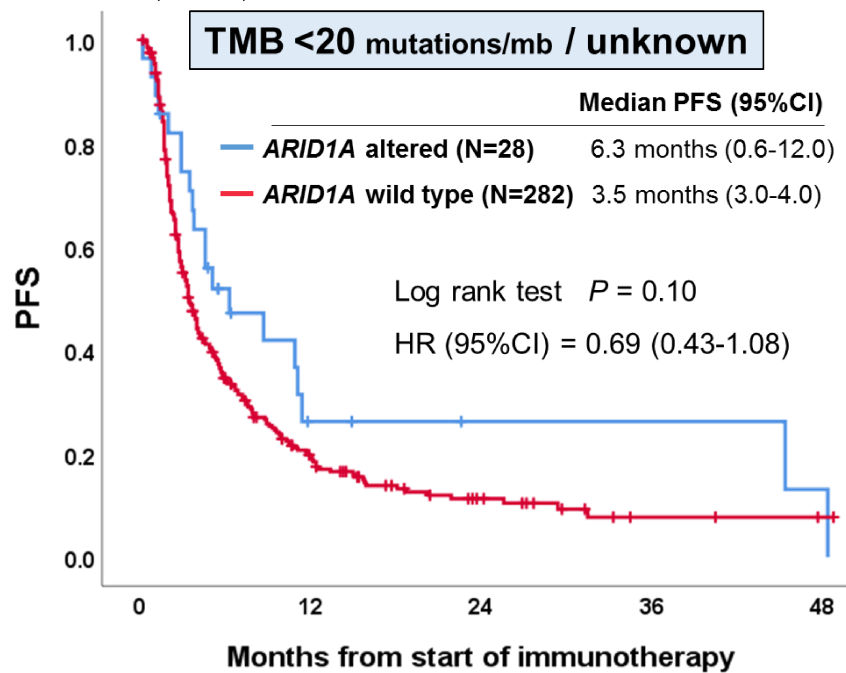
Abbreviations: Bladder, urothelial bladder carcinoma; Breast, breast cancer; Cholangio/HCC, cholangiocarcinoma and hepatocellular carcinoma; Colorectal, colorectal adenocarcinoma; Endometrial, uterine/ovary endometrial (endometrioid) carcinoma; Gastroesophageal, gastric/esophageal adenocarcinoma; NGS, next-generation sequencing; NSCLC, non-small cell lung cancer; Pancreatic, pancreatic ductal adenocarcinoma; PD-1/PD-L1, programmed cell death-1 and its ligand; PREDICT study, Profile-Related Evidence Determining Individualized Cancer Therapy study.

Supplementary Figure 2. Kaplan-Meier curve of progression-free survival among patients who received anti-PD-1/PD-L1 immunotherapy according to cancer types. Breast cancer, pancreatic ductal adenocarcinoma, cholangiocarcinoma/hepatocellular carcinoma, and urothelial bladder carcinoma were not shown because of insufficient numbers of patients with *ARID1A*-altered tumor ($N \leq 2$).



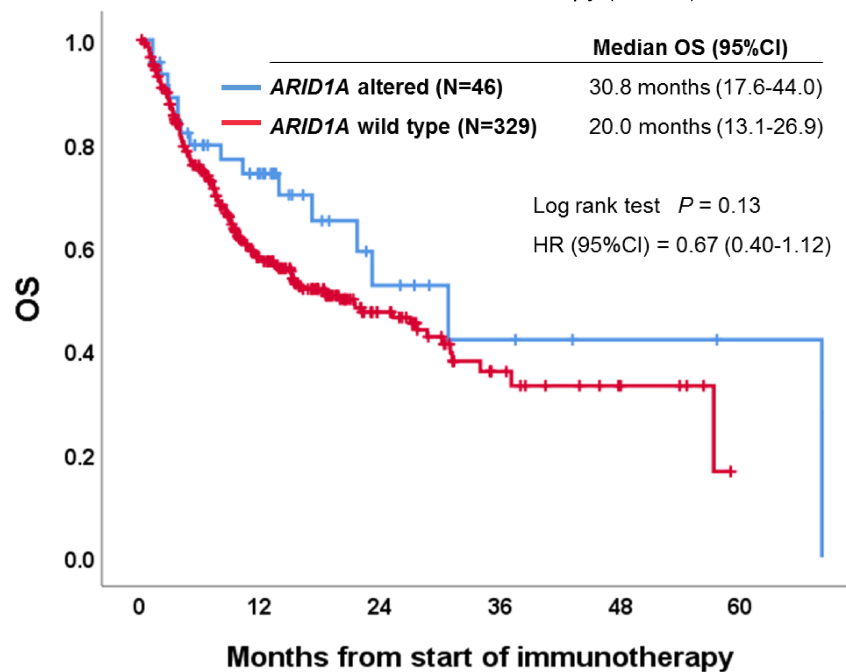
Abbreviations: Colorectal, colorectal adenocarcinoma; Endometrial, uterine/ovary endometrial (endometrioid) carcinoma; Gastroesophageal, gastric/esophageal adenocarcinoma; NSCLC, non-small cell lung cancer; PD-1/PD-L1, programmed cell death-1 and its ligand.

Supplementary Figure 3. Kaplan-Meier curve of progression-free survival among patients without TMB-High who received anti-PD-1/PD-L1 immunotherapy (N=310). Similar results were seen even if the TMB-unknown (N=24) were excluded ($P=0.09$).



Abbreviations: CI, confidence interval; HR, hazard ratio; PD-1/PD-L1, programmed cell death-1 and its ligand; PFS, progression-free survival; TMB, tumor mutational burden.

Supplementary Figure 4. Kaplan-Meier curve of overall survival according to *ARID1A* status among patients who received anti-PD-1/PD-L1 immunotherapy (N=375).



Abbreviations: CI, confidence interval; HR, hazard ratio; OS, overall survival; PD-1/PD-L1, programmed cell death-1 and its ligand.