

**Table S1** List of abbreviations

| Cohort        | Cancer   |
|---------------|--|
| TCGA-ACC      | Adrenocortical carcinoma   |
| TCGA-BLCA     | Bladder urothelial carcinoma                                     |
| TCGA-BRCA     | Breast invasive carcinoma  |
| TCGA-CESC     | Cervical squamous cell carcinoma and endocervical adenocarcinoma |
| TCGA-CHOL     | Cholangiocarcinoma   |
| TCGA-COAD     | Colon adenocarcinoma   |
| TCGA-COADREAD | Colon adenocarcinoma/rectum adenocarcinoma esophageal carcinoma  |
| TCGA-DLBC     | Lymphoid neoplasm diffuse large b-cell lymphoma                  |
| TCGA-ESCA     | Esophageal carcinoma   |
| TCGA-FPPP     | FFPE pilot phase II  |
| TCGA-GBM      | Glioblastoma multiforme  |
| TCGA-GBMLGG   | Glioma   |
| TCGA-HNSC     | Head and neck squamous cell carcinoma                            |
| TCGA-KICH     | Kidney chromophobe   |
| TCGA-KIPAN    | Pankidney cohort (KICH + KIRC + KIRP)                            |
| TCGA-KIRC     | Kidney renal clear cell carcinoma                                |
| TCGA-KIRP     | Kidney renal papillary cell carcinoma                            |
| TCGA-LAML     | Acute myeloid leukemia   |
| TCGA-LGG      | Brain lower-grade glioma   |
| TCGA-LIHC     | Liver hepatocellular carcinoma                                   |
| TCGA-LUAD     | Lung adenocarcinoma  |
| TCGA-LUSC     | Lung squamous cell carcinoma                                     |
| TCGA-MESO     | Mesothelioma   |
| TCGA-OV       | Ovarian serous cystadenocarcinoma                                |
| TCGA-PAAD     | Pancreatic adenocarcinoma  |
| TCGA-PCPG     | Pheochromocytoma and paraganglioma                               |
| TCGA-PRAD     | Prostate adenocarcinoma  |
| TCGA-READ     | Rectum adenocarcinoma  |
| TCGA-SARC     | Sarcoma  |
| TCGA-STAD     | Stomach adenocarcinoma   |
| TCGA-SKCM     | Skin cutaneous melanoma  |
| TCGA-STES     | Stomach and esophageal carcinoma                                 |
| TCGA-TGCT     | Testicular germ cell tumors                                      |
| TCGA-THCA     | Thyroid carcinoma  |
| TCGA-THYM     | Thymoma  |
| TCGA-UCEC     | Uterine corpus endometrial carcinoma                             |
| TCGA-UCS      | Uterine carcinosarcoma   |
| TCGA-UVM      | Uveal melanoma   |
| TARGET-OS     | Osteosarcoma   |
| TARGET-ALL    | Acute lymphoblastic leukemia                                     |
| TARGET-NB     | Neuroblastoma  |
| TARGET-WT     | High-risk Wilms tumor  |