**Supplementary Table. 2A** Correlation Analysis between ATF4 and Infiltrating Immune Cells

|  |  |  |
| --- | --- | --- |
| cell | correlation | *p*.value |
| Effector memory CD8 T cell | 0.334 | 0.000 |
| Macrophage | 0.098 | 0.173 |
| Mast cell | 0.328 | 0.000 |
| MDSC | 0.290 | 0.000 |
| Natural killer cell | 0.386 | 0.000 |
| Natural killer T cell | 0.442 | 0.000 |
| Neutrophil | 0.264 | 0.000 |
| Plasmacytoid dendritic cell | 0.350 | 0.000 |
| Regulatory T cell | 0.074 | 0.303 |
| T follicular helper cell | 0.409 | 0.000 |
| Type 1 T helper cell | 0.203 | 0.004 |
| Type 17 T helper cell | 0.160 | 0.025 |
| Type 2 T helper cell | 0.009 | 0.897 |

**Supplementary Table. 2B** Correlation Analysis between ITPKB and Infiltrating Immune Cells

|  |  |  |
| --- | --- | --- |
| cell | correlation | *p.*value |
| Activated B cell | 0.427 | 0.000 |
| Activated CD4 T cell | -0.406 | 0.000 |
| Activated CD8 T cell | 0.466 | 0.000 |
| Activated dendritic cell | 0.379 | 0.000 |
| CD56bright natural killer cell | 0.098 | 0.175 |
| Macrophage | 0.521 | 0.000 |
| Mast cell | 0.265 | 0.000 |
| MDSC | 0.617 | 0.000 |
| Memory B cell | 0.155 | 0.030 |
| Monocyte | 0.444 | 0.000 |
| Natural killer cell | 0.696 | 0.000 |
| Natural killer T cell | 0.828 | 0.000 |
| Neutrophil | 0.399 | 0.000 |
| Plasmacytoid dendritic cell | 0.630 | 0.000 |
| Regulatory T cell | 0.155 | 0.030 |
| T follicular helper cell | 0.585 | 0.000 |
| Type 1 T helper cell | 0.489 | 0.000 |
| Type 17 T helper cell | 0.348 | 0.000 |
| Type 2 T helper cell | -0.422 | 0.000 |

**Supplementary Table. 2C** Correlation Analysis between GRINA and Infiltrating Immune Cells

|  |  |  |
| --- | --- | --- |
| cell | correlation | *p*.value |
| Activated B cell | 0.169 | 0.018 |
| Activated CD4 T cell | -0.251 | 0.000 |
| Activated CD8 T cell | 0.096 | 0.182 |
| Activated dendritic cell | 0.197 | 0.006 |
| CD56bright natural killer cell | -0.325 | 0.000 |
| CD56dim natural killer cell | -0.293 | 0.000 |
| Central memory CD4 T cell | 0.346 | 0.000 |
| Central memory CD8 T cell | -0.053 | 0.465 |
| Effector memory CD4 T cell | -0.154 | 0.032 |
| Effector memory CD8 T cell | -0.088 | 0.224 |
| Eosinophil | -0.211 | 0.003 |
| Gamma delta T cell | -0.209 | 0.003 |
| Immature B cell | -0.102 | 0.154 |