|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | TIMER |  |  |  |  |  | GEPIA |  |
|  |  | None |  | Purity |  | Age |  | Tumor |  |
| Cell type | Gene markers | COR | *P* | COR | *P* | COR | *P* | COR | *P* |
| B cell | CD19 | -0.123 | **5.17E-03** | -0.133 | **3.02E-03** | -0.129 | **4.51E-03** | -0.140 | **2.50E-03** |
|  | CD79A | -0.150 | **6.64E-04** | -0.160 | **3.56E-04** | -0.153 | **7.64E-04** | -0.190 | **2.80E-05** |
|  | FCRL2 | -0.103 | **1.93E-02** | -0.113 | **1.19E-02** | -0.103 | **2.40E-02** | -0.079 | 8.30E-02 |
| CD8+T Cell | CD8A | 0.053 | 2.32E-01 | 0.062 | 1.68E-01 | 0.071 | 1.18E-01 | -0.079 | 8.30E-02 |
|  | CD8B | -0.005 | 9.04E-01 | -0.003 | 9.52E-01 | 0.010 | 8.25E-01 | -0.041 | 3.70E-01 |
|  | CEACAM3 | 0.001 | 9.85E-01 | 0.003 | 9.56E-01 | -0.002 | 9.72E-01 | 0.013 | 7.80E-01 |
| Tfh | CXCR3 | 0.013 | 7.64E-01 | 0.012 | 7.84E-01 | 0.025 | 5.82E-01 | 0.003 | 9.60E-01 |
|  | IL21 | -0.039 | 3.82E-01 | -0.027 | 5.53E-01 | -0.037 | 4.16E-01 | -0.035 | 4.40E-01 |
|  | ICOS | 0.063 | 1.54E-01 | 0.067 | 1.36E-01 | 0.076 | 9.52E-02 | 0.024 | 5.90E-01 |
| Th1 | STAT1 | 0.261 | **2.08E-09** | 0.278 | **4.12E-10** | 0.285 | **2.08E-10** | 0.260 | **1.20E-08** |
|  | TNF | 0.168 | **1.22E-04** | 0.164 | **2.44E-04** | 0.195 | **1.67E-05** | 0.028 | 5.30E-01 |
|  | CCR5 | 0.073 | 1.00E-01 | 0.086 | 5.75E-02 | 0.093 | **4.06E-02** | 0.046 | 3.10E-01 |
| Th2 | STAT6 | 0.169 | **1.16E-04** | 0.175 | **9.58E-05** | 0.191 | **2.54E-05** | 0.110 | **1.20E-02** |
|  | CCR8 | 0.116 | **1.92E-04** | 0.121 | **1.42E-04** | 0.126 | **8.22E-05** | 0.097 | **3.20E-02** |
|  | HAVCR1 | 0.093 | **3.50E-02** | 0.088 | 5.01E-02 | 0.118 | **9.39E-03** | 0.210 | **3.20E-06** |
| Th17 | IL21R | 0.044 | 3.17E-01 | 0.048 | 2.91E-01 | 0.062 | 1.73E-01 | 0.030 | 5.10E-01 |
|  | STAT3 | -0.022 | 6.24E-01 | -0.021 | 6.43E-01 | -0.020 | 6.54E-01 | 0.170 | **2.30E-04** |
|  | IL23R | 0.067 | 1.28E-01 | 0.066 | **1.46E-01** | 0.077 | 8.91E-02 | 0.150 | **1.40E-03** |
| Treg | CCR8 | 0.213 | **1.15E-06** | 0.214 | **1.76E-06** | 0.218 | **1.41E-06** | 0.097 | **3.20E-02** |
|  | TGFB1 | 0.267 | **7.68E-10** | 0.262 | **3.30E-09** | 0.262 | **5.05E-09** | 0.140 | **1.40E-03** |
|  | IL7R | 0.090 | **4.14E-02** | 0.110 | **1.43E-02** | 0.108 | **1.72E-02** | -0.017 | 7.10E-01 |
| T cell exhaustion | PDCD1 | 0.131 | **2.94E-03** | 0.147 | **1.07E-03** | 0.154 | **7.06E-04** | 0.058 | 2.00E-01 |
|  | GZMB | -0.011 | 8.10E-01 | -0.005 | 9.05E-01 | 0.011 | 8.15E-01 | 0.017 | 7.10E-01 |
|  | HAVCR2 | -0.001 | 9.76E-01 | 0.003 | 9.43E-01 | 0.013 | 7.70E-01 | 0.092 | **4.40E-02** |
| M1 Macrophage | NOS2 | 0.240 | **4.00E-08** | 0.244 | **4.43E-08** | 0.258 | **1.02E-08** | -0.054 | 2.30E-01 |
|  | IRF5 | 0.091 | **3.92E-02** | 0.080 | 7.46E-02 | 0.098 | **3.07E-02** | 0.230 | **2.60E-07** |
|  | PTGS2 | 0.095 | **3.17E-02** | 0.113 | **1.23E-02** | 0.115 | **1.17E-02** | 0.015 | 7.50E-01 |
| M2 Macrophage | CD163 | 0.094 | **3.39E-02** | 0.106 | **1.87E-02** | 0.105 | **2.15E-02** | -0.007 | 8.70E-01 |
|  | CD209 | 0.068 | 1.22E-01 | 0.084 | 6.25E-02 | 0.092 | **4.23E-02** | 0.046 | 3.20E-01 |
|  | MS4A4A | 0.069 | 1.19E-01 | 0.086 | 5.55E-02 | 0.091 | **4.47E-02** | 0.029 | 5.20E-01 |
| TAM | CCL2 | 0.102 | **2.10E-02** | 0.119 | **8.07E-03** | 0.119 | **8.60E-03** | 0.055 | 2.20E-01 |
|  | CD86 | 0.153 | **5.17E-04** | 0.162 | **2.92E-04** | 0.170 | **1.69E-04** | 0.078 | 8.80E-02 |
|  | CD68 | 0.076 | 8.61E-02 | 0.088 | 5.11E-02 | 0.088 | 5.33E-02 | 0.150 | **7.20E-04** |
| Monocyte | CD14 | 0.077 | **7.91E-02** | 0.097 | **3.14E-02** | 0.099 | **2.99E-02** | -0.008 | 8.60E-01 |
|  | CD33 | 0.106 | **6.72E-04** | 0.123 | **1.11E-04** | 0.124 | **1.09E-04** | 0.011 | 8.10E-01 |
|  | CSF1R | 0.045 | 3.03E-01 | 0.052 | 2.53E-01 | 0.070 | 1.22E-01 | 0.054 | 2.30E-01 |
| Natural killer cell | NCR1 | -0.051 | 2.52E-01 | -0.046 | 3.03E-01 | -0.035 | 4.43E-01 | 0.072 | 1.20E-01 |
|  | KIR2DS4 | -0.111 | **1.20E-02** | -0.102 | **2.32E-02** | -0.097 | **3.24E-02** | -0.042 | 3.60E-01 |
|  | CD7 | 0.130 | **3.04E-03** | 0.149 | **9.34E-04** | 0.155 | **6.45E-04** | 0.010 | 8.30E-01 |
| Neutrophil | CD55 | 0.134 | **1.54E-05** | 0.148 | **3.08E-06** | 0.151 | **2.24E-06** | 0.110 | **2.10E-02** |
|  | ITGAM | 0.124 | **4.72E-03** | 0.138 | **2.20E-03** | 0.138 | **2.44E-03** | 0.100 | **2.20E-02** |
|  | S100A12 | 0.093 | **3.41E-02** | 0.095 | **3.47E-02** | 0.112 | **1.35E-02** | 0.021 | 6.40E-01 |
| Dendritic cell | CD1C | 0.080 | 7.04E-02 | 0.090 | **4.64E-02** | 0.091 | **4.47E-02** | -0.003 | 9.40E-01 |
|  | CD209 | 0.105 | **1.72E-02** | 0.121 | **7.34E-03** | 0.118 | **9.16E-03** | 0.046 | 3.20E-01 |
|  | HLA-DPB1 | 0.120 | **6.46E-03** | 0.134 | **2.80E-03** | 0.132 | **3.77E-03** | 0.014 | 7.60E-01 |