**Figure S1.** The enrichment of HLA-DRB6 in immune cell of HCC. (A) Uniform Manifold Approximation and Projection (UMAP) map of immune cells in HCC. (B) UMAP map of HLA-DRB6 expression in HCC.

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**Figure S2.** Association of HLA-DRB6 with multiple chemokines.

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**Figure S3.** The enrichment of CXCL10 in cells. (A) Analysis the single cell transcriptome data of Itay tirosh for understanding the distribution of CXCL10 in cells. (B) Distribution of CXCL10 in cells shown by the data of Livnat jerby-Arnon.

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**Table S1.** Differentially expressed genes in peripheral blood of patients with and without response before tremelimumab treatment.

|  |  |  |
| --- | --- | --- |
| Genes | logFC | P.Value |
| CXCL10 | 0.472581 | 0.00885 |
| IL10 | 0.447347 | 0.01828 |
| BLVRB | 0.229083 | 0.02225 |
| NEDD4L | 0.222983 | 0.03385 |
| NME4 | 0.211976 | 0.00654 |
| PDE3B | -0.20116 | 0.03594 |
| ITGA4 | -0.21466 | 0.03902 |
| NAB2 | -0.23391 | 0.04599 |
| ZBTB10 | -0.29481 | 0.03065 |

**Table S2.** Differentially expressed genes before and after treatment in peripheral blood of patients responsive to tremelimumab.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Genes | logFC | P.Value | Genes | logFC | P.Value |
| CDC25A | -1.84603 | 4.71E-15 | IL10 | -0.7433 | 3.20E-03 |
| CTLA4 | -1.64779 | 2.82E-14 | CASP3 | -0.50176 | 3.76E-02 |
| IGHG2 | -1.23436 | 2.09E-03 | VEGFA | -0.46395 | 1.88E-02 |
| CCR9 | -1.16735 | 6.08E-07 | IL23A | -0.45162 | 2.10E-02 |
| ANLN | -1.11947 | 2.42E-12 | C1QA | -0.4488 | 2.34E-02 |
| UBE2C | -1.07159 | 9.45E-12 | MIF | -0.35384 | 7.42E-03 |
| FOXP3 | -1.03871 | 4.18E-08 | GZMA | -0.34763 | 4.54E-02 |
| ICOS | -0.96953 | 4.31E-08 | ITGA4 | -0.32508 | 9.81E-03 |
| CD28 | -0.91895 | 5.83E-07 | CDK2 | -0.31237 | 1.05E-02 |
| CXCL10 | -0.90828 | 2.74E-05 | MSH2 | -0.30646 | 2.30E-02 |
| CDKN2A | -0.89745 | 4.92E-08 | IFI16 | -0.25344 | 2.95E-02 |
| CXCR3 | -0.88301 | 3.64E-07 | TP53 | -0.24082 | 3.06E-02 |
| IFNG | -0.81018 | 1.04E-03 | DENND2D | -0.1975 | 2.56E-02 |
| E2F1 | -0.75224 | 1.70E-09 | PTEN | 0.23653 | 1.25E-02 |
| IL2RA | -0.61516 | 2.32E-04 | MNDA | 0.27043 | 2.19E-02 |
| CCR5 | -0.60825 | 7.14E-04 | TLR2 | 0.30578 | 1.58E-02 |
| IL32 | -0.58243 | 2.20E-04 | FOS | 0.31587 | 4.46E-03 |
| LCK | -0.52487 | 3.97E-04 | PTGS2 | 0.31605 | 5.34E-03 |
| CD40LG | -0.46969 | 2.72E-03 | CXCL1 | 0.36755 | 6.22E-03 |
| SOCS1 | -0.42434 | 2.56E-03 | CCND1 | 0.4616 | 3.84E-02 |
| HMGA1 | -0.40673 | 9.10E-04 | CXCL8 | 0.67556 | 5.37E-03 |
| NRAS | -0.34507 | 1.04E-03 |  |  |  |