|  |  |
| --- | --- |
| gene | Cell Type |
| CD28A | Lymphocytos |
| CD27 | Lymphocytos |
| PRF1 | Lymphocytos |
| CD163 | macrophages |
| FCGR2A | macrophages |
| COL1A2 | Fibroblasts |
| APOD | Fibroblasts |
| PECAM1 | Endothelial cells |
| EGFL7 | Endothelial cells |
| EMCN | Endothelial cells |
| ACTG2 | smooth muscle cells |
| EPCAM | Tumor/epithelial cells |
| CDH1 | Tumor/epithelial cells |
| CDKN2A | Tumor/epithelial cells |

**Table S1|Annotation of cell surface annotator genes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | Hazard\_ratio | Low\_CI | High\_CI | p\_value |
| CELF2 | 0.926599 | 0.859165 | 0.999325 | 0.047989 |
| HLA.DPB1 | 0.996697 | 0.994186 | 0.999215 | 0.010159 |
| CD74 | 0.999746 | 0.999549 | 0.999944 | 0.011822 |
| TPM3 | 1.010388 | 1.003197 | 1.01763 | 0.004569 |
| AMD1 | 1.022631 | 1.005341 | 1.040218 | 0.010103 |
| ZMYM2 | 1.028183 | 1.006006 | 1.050849 | 0.012482 |
| ZC3H13 | 1.031757 | 1.008761 | 1.055277 | 0.006559 |
| TXNDC12 | 1.102507 | 1.0441 | 1.164182 | 0.000442 |

**Table S2| HR values of 8 genes in a prognostic model related to vascular neogenesis**

|  |  |
| --- | --- |
| ID | Coef |
| CD74 | -1.69E-05 |
| TPM3 | 0.002625 |
| ZC3H13 | 0.001495 |
| TXNDC12 | 0.044585 |
| CELF2 | -8.10E-04 |
| ZMYM2 | 0.003003 |
| HLA-DPB1 | -6.52E-04 |
| AMD1 | 0.001105 |

**Table S3| The coefficient of lasso regression of 8 model genes**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | ID | Description | pvalue | p.adjust | qvalue | geneID | one\_type | two\_type | | hsa04612 | Antigen processing and presentation | 0.000941 | 0.031986 | 0.017825 | HLA-DPB1/CD74 | Organismal Systems | Immune system | | hsa05152 | Tuberculosis | 0.004864 | 0.082688 | 0.04608 | HLA-DPB1/CD74 | Human Diseases | Infectious disease: bacterial | | hsa05310 | Asthma | 0.019438 | 0.089311 | 0.049771 | HLA-DPB1 | Human Diseases | Immune disease | | hsa05216 | Thyroid cancer | 0.023165 | 0.089311 | 0.049771 | TPM3 | Human Diseases | Cancer: specific types | | hsa05330 | Allograft rejection | 0.023785 | 0.089311 | 0.049771 | HLA-DPB1 | Human Diseases | Immune disease | | hsa05332 | Graft-versus-host disease | 0.025643 | 0.089311 | 0.049771 | HLA-DPB1 | Human Diseases | Immune disease | | hsa04940 | Type I diabetes mellitus | 0.02688 | 0.089311 | 0.049771 | HLA-DPB1 | Human Diseases | Endocrine and metabolic disease | | hsa00270 | Cysteine and methionine metabolism | 0.030584 | 0.089311 | 0.049771 | AMD1 | Metabolism | Amino acid metabolism | | hsa04672 | Intestinal immune network for IgA production | 0.030584 | 0.089311 | 0.049771 | HLA-DPB1 | Organismal Systems | Immune system | | hsa00330 | Arginine and proline metabolism | 0.031201 | 0.089311 | 0.049771 | AMD1 | Metabolism | Amino acid metabolism | | hsa05320 | Autoimmune thyroid disease | 0.033048 | 0.089311 | 0.049771 | HLA-DPB1 | Human Diseases | Immune disease | | hsa05168 | Herpes simplex virus 1 infection | 0.033886 | 0.089311 | 0.049771 | HLA-DPB1/CD74 | Human Diseases | Infectious disease: viral | | hsa00480 | Glutathione metabolism | 0.034892 | 0.089311 | 0.049771 | TXNDC12 | Metabolism | Metabolism of other amino acids | | hsa05416 | Viral myocarditis | 0.037346 | 0.089311 | 0.049771 | HLA-DPB1 | Human Diseases | Cardiovascular disease | | hsa05321 | Inflammatory bowel disease (IBD) | 0.040407 | 0.089311 | 0.049771 | HLA-DPB1 | Human Diseases | Immune disease | | hsa05140 | Leishmaniasis | 0.047114 | 0.089311 | 0.049771 | HLA-DPB1 | Human Diseases | Infectious disease: parasitic | | KEGG |  |  |  |  |  |  |  | |

**Table S4|** **Analysis of KEGG pathway of model genes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Term | P-value | Odds Ratio | Combined Score | Genes |
| Penconazole CTD 00003093 | 0.005189 | 237.8571 | 1251.416 | TPM3 |
| bisacodyl MCF7 UP | 0.003171 | 30.51852 | 175.5917 | ZMYM2;AMD1 |
| Nickelous acetate CTD 00003684 | 0.024537 | 46.67681 | 173.0583 | TXNDC12 |
| Zinc sulfate CTD 00007264 | 0.005464 | 22.96737 | 119.6509 | HLA-DPB1;TXNDC12 |
| staurosporine MCF7 DOWN | 0.001686 | 17.96842 | 114.7381 | ZMYM2;AMD1;ZC3H13 |
| VALPROIC ACID CTD 00006977 | 0.010897 | 9.848543 | 44.50776 | CD74;ZMYM2;TPM3;CELF2;AMD1;HLA-DPB1;ZC3H13 |

**Table S5|** **Potential Small Molecule Drug Prediction**