**Supplement Table 1** The identified common genes between ulcerative colitis and self-healing.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Common gene names** | | | | | | | | | |
| *LBR* | *TGFB2* | *CD34* | *CD46* | *CD55* | *IL10* | *OPTC* | *PTPRC* | *CCL20* | *CD244* |
| *IL8RA* | *IL8RB* | *NTRK1* | *FN1* | *PHGDH* | *CD2* | *NGF* | *TP63* | *THPO* | *VCAM1* |
| *CCR6* | *PLG* | *ESR1* | *IL1A* | *LIMS1* | *CD7* | *IL1R1* | *CBL* | *MKI67* | *TIE1* |
| *GRB2* | *CD8A* | *IL18* | *C2* | *PAEP* | *LEP* | *BAX* | *MMP1* | *GH1* | *ABL1* |
| *NOVA2* | *NOS1* | *G6PD* | *LCK* | *CD207* | *SERPINE1* | *EPO* | *TGFB1* | *CCND1* | *VEGFA* |
| *CD40LG* | *HPRT1* | *TLR4* | *TNC* | *KRIT1* | *SRI* | *CDH1* | *LYZ* | *IFNG* | *STAT3* |
| *CTNNB1* | *GAST* | *KRT19* | *LAT2* | *PTCH1* | *AGER* | *TNFRSF8* | *CNOT8* | *CXCL9* | *CXCL10* |
| *CXCL11* | *IFNA1* | *OTC* | *MYO5A* | *PRL* | *ICAM1* | *VIM* | *SMG1* | *TWIST1* | *HMOX1* |
| *BDNF* | *TIMP1* | *IL6* | *ABCG2* | *CD59* | *WAS* | *ITCH* | *FBN2* | *CD44* | *CSF2* |
| *IL5* | *IL13* | *IL4* | *HLA-A* | *PPARG* | *NOS2* | *VTN* | *SPAG5* | *EGF* | *HEXA* |
| *IL2* | *NUDT6* | *TNF* | *ITGAL* | *IL15* | *CCL2* | *CCL5* | *CCL3* | *CXCR3* | *RPS4X* |
| *MMP9* | *CD40* | *AKT1* | *MAX* | *FGF7* | *ACTB* | *PTH* | *IL8* | *F13A1* | *ALB* |
| *F2R* | *CD68* | *AIRE* | *LGALS3* | *KIT* | *PCNA* | *GTPBP4* | *C19orf10* | *TNFSF11* | *BCL2* |
| *THBS1* | *PNMA2* | *ALOX5AP* | *HMGB1* | *CD4* | *SMAD2* | *BTG3* |  |  |  |

**Supplement Table 2** The top ten KEGG enrichment analysis of 16 genes in the most significant module.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Description** | **GeneRatio** | **BgRatio** | **pvalue** | **p.adjust** | **qvalue** | **Gene** | **Count** |
| hsa04060 | Cytokine-cytokine receptor interaction | 10/16 | 294/8032 | 2.45E-11 | 6.07E-10 | 1.60E-10 | *CCL2, IL4, IL1A, IL6, IL10, IL18, CSF2, IL13, CXCL8, TNF* | 10 |
| hsa05323 | Rheumatoid arthritis | 9/16 | 93/8032 | 2.70E-14 | 3.29E-12 | 8.66E-13 | *ICAM1, CCL2, VEGFA, IL1A, IL6, IL18, CSF2, CXCL8, TNF* | 9 |
| hsa04933 | AGE-RAGE signaling pathway in diabetic complications | 9/16 | 100/8032 | 5.31E-14 | 3.29E-12 | 8.66E-13 | *ICAM1, CCL2, VEGFA, IL1A, FN1, IL6, STAT3, CXCL8, TNF* | 9 |
| hsa05321 | Inflammatory bowel disease (IBD) | 8/16 | 65/8032 | 1.44E-13 | 5.96E-12 | 1.57E-12 | *IL4, IL1A, IL6, IL10, IL18, STAT3, IL13, TNF* | 8 |
| hsa04630 | JAK-STAT signaling pathway | 8/16 | 162/8032 | 2.59E-10 | 4.58E-09 | 1.21E-09 | *IL4, IL6, IL10, EGF, CSF2, STAT3, IL13, GRB2* | 8 |
| hsa05144 | Malaria | 7/16 | 50/8032 | 2.57E-12 | 7.96E-11 | 2.09E-11 | *ICAM1, CCL2, IL6, IL10, IL18, CXCL8, TNF* | 7 |
| hsa04657 | IL-17 signaling pathway | 7/16 | 94/8032 | 2.52E-10 | 4.58E-09 | 1.21E-09 | *CCL2, IL4, IL6, CSF2, IL13, CXCL8, TNF* | 7 |
| hsa05135 | Yersinia infection | 7/16 | 120/8032 | 1.43E-09 | 2.21E-08 | 5.82E-09 | *CCL2, FN1, IL6, IL10, IL18, CXCL8, TNF* | 7 |
| hsa05164 | Influenza A | 7/16 | 170/8032 | 1.64E-08 | 2.03E-07 | 5.35E-08 | *ICAM1, CCL2, IL1A, IL6, IL18, CXCL8, TNF* | 7 |
| hsa05143 | African trypanosomiasis | 5/16 | 37/8032 | 6.60E-09 | 9.09E-08 | 2.39E-08 | *ICAM1, IL6, IL10, IL18, TNF* | 5 |

**Supplement Table 3** Drug-Gene Interaction Finding in DGIdb database.

| **gene** | **drug** | **interaction\_types** | **sources** | **pmids** | |
| --- | --- | --- | --- | --- | --- |
| *TNF* | POMALIDOMIDE | inhibitor | DrugBank | 22917017 | |
| *TNF* | INFLIXIMAB | antibody|inhibitor | PharmGKB|TdgClinicalTrial|ChemblInteractions|TEND|DrugBank|TTD | 16456024|16052578|12110154|15481318|15691299|15674127|15804598|11752352|15691217|17642244|16622728 | |
| *TNF* | THALIDOMIDE | inhibitor | TdgClinicalTrial|TEND|DrugBank|TTD | 8755512|12046682|12167383|12105857|12102294|11752352|12113124 | |
| *TNF* | LENALIDOMIDE | inhibitor | ClearityFoundationClinicalTrial|TTD | |  |
| *TNF* | CERTOLIZUMAB PEGOL | neutralizer|antibody|inhibitor | TdgClinicalTrial|ChemblInteractions|TEND|DrugBank|TTD | 23620660 | |
| *TNF* | ADALIMUMAB | antibody|inhibitor | PharmGKB|TdgClinicalTrial|ChemblInteractions|TEND|DrugBank|TTD | 12044041|15022409|14532145|15046527|11752352|15200343 | |
| *TNF* | GLIMEPIRIDE |  | NCI | 14686960 | |
| *TNF* | ETANERCEPT | antibody|inhibitor | PharmGKB|TdgClinicalTrial|ChemblInteractions|TEND|DrugBank|TTD | 10375846|10405518|10206649|11752352|10338381|10357816 | |
| *TNF* | PROCARBAZINE |  | NCI | 12230110 | |
| *TNF* | APREMILAST |  | DrugBank |  | |
| *TNF* | PIRFENIDONE | inhibitor | TTD |  | |
| *TNF* | GOLIMUMAB | antibody|inhibitor | TdgClinicalTrial|ChemblInteractions|TEND|DrugBank|TTD | 21079302 | |
| *IL10* | SIROLIMUS |  | NCI | 12907620 | |
| *IL10* | TRETINOIN |  | NCI | 8982293 | |
| *VEGFA* | LENALIDOMIDE |  | ClearityFoundationClinicalTrial | |  |
| *VEGFA* | SORAFENIB |  | CGI |  | |
| *CXCL8* | PACLITAXEL |  | NCI | 9271387 | |
| *CXCL8* | LEFLUNOMIDE |  | NCI | 10902750 | |
| *CXCL8* | TRETINOIN |  | NCI | 8900181 | |
| *CXCL8* | CYCLOPHOSPHAMIDE |  | PharmGKB |  | |
| *GRB2* | DACTINOMYCIN |  | NCI | 15964235 | |
| *IL6* | INTERFERON ALFA-2B |  | NCI | 10022737 | |
| *IL6* | GALLIUM NITRATE |  | NCI | 8788232 | |
| *IL6* | SILTUXIMAB | antagonist|antibody|inhibitor | MyCancerGenome|ChemblInteractions|DrugBank | 8823310 | |
| *IL6* | IFOSFAMIDE |  | NCI | 9260581 | |
| *IL1A* | MITOMYCIN |  | NCI | 8195120 | |
| *IL1A* | RILONACEPT | binder | TdgClinicalTrial|TEND|DrugBank | 23319019|23553601 | |
| *CSF2* | INTERFERON ALFA-2B |  | NCI | 10522033 | |
| *CSF2* | MECHLORETHAMINE |  | NCI | 10640980 | |
| *CSF2* | STREPTOZOTOCIN |  | NCI | 16342200 | |
| *CSF2* | PROCARBAZINE |  | NCI | 10640980 | |
| *CSF2* | TEMOZOLOMIDE |  | NCI | 12610499|16100942 | |
| *CSF2* | MYCOPHENOLIC ACID |  | NCI | 9822358 | |
| *CSF2* | MYCOPHENOLATE MOFETIL |  | NCI | 16029632|12974756 | |
| *CSF2* | ETANERCEPT |  | NCI | 12906870 | |
| *CSF2* | CYTARABINE |  | NCI | 8819077|8450676 | |
| *CSF2* | VINBLASTINE |  | NCI | 10640980 | |
| *IL18* | TACROLIMUS |  | NCI | 11061569 | |
| *IL18* | MYCOPHENOLIC ACID |  | NCI | 12907250 | |
| *ICAM1* | NATALIZUMAB |  | DrugBank | 11752352 | |

**Supplement Table 4** Gene Expression Statistical Significance

|  |  |  |
| --- | --- | --- |
| **RNA-seq** | | |
| **Gene name** | **Comparison** | **Statistical significance** |
| ***VEGFA*** | Normal-vs-Primary | **<1E-12** |
| ***IL1A*** | Normal-vs-Primary | **5.66214E-15** |
| ***ICAM1*** | Normal-vs-Primary | **1.00475E-12** |
| ***CSF2*** | Normal-vs-Primary | **9.53815E-12** |
| ***IL18*** | Normal-vs-Primary | **5.3219E-10** |
| ***IL10*** | Normal-vs-Primary | **2.0233E-05** |
| ***FN1*** | Normal-vs-Primary | **0.000139695** |
| ***IL13*** | Normal-vs-Primary | **0.00025707** |
| ***GRB2*** | Normal-vs-Primary | **0.0026793** |
| ***EGF*** | Normal-vs-Primary | **0.005396** |
| ***IL4*** | Normal-vs-Primary | **0.0190404** |
| ***STAT3*** | Normal-vs-Primary | **0.021863** |
| ***IL6*** | Normal-vs-Primary | **0.026103** |
| *CCL2* | Normal-vs-Primary | 0.149559 |
| *TNF* | Normal-vs-Primary | 0.45088 |
| **Total Protein** | | |
| **Gene name** | **Comparison** | **Statistical significance** |
| **ICAM1** | Normal-vs-Primary | **3.52496E-16** |
| **GRB2** | Normal-vs-Primary | **1.73E-10** |
| **CXCL8** | Normal-vs-Primary | **0.00039923** |
| STAT3 | Normal-vs-Primary | 0.0702809 |
| IL18 | Normal-vs-Primary | 0.9070208 |
| FN1 | Normal-vs-Primary | 0.914499 |