**Supplementary material**

**Analyses of heparin binding proteins expression in periodontal tissues**

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**Table 1.** Top GO terms (BP and MF) enriched to periodontitis HBP dataset.

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| --- |
| TOP GO TERMS (BP) ENRICHED TO PERIODONTITIS HBP DATASET |
|  | Term | Count | % | PValue | Genes |
| GOTERM\_BP\_FAT | GO:0009611~response to wounding | 26 | 60.47 | 5.13E-25 | CXCL1, CCL3, TNF, CCL2, TNC, CXCL2, CXCL6, CCL5, CCL4, IL10, CXCL10, CTGF, SERPINE1, CFH, THBS1, FGF2, FN1, IL6, APCS, IL8, CFB, CCL19, CD36, CXCL13, HBEGF, PLAU |
| GOTERM\_BP\_FAT | GO:0006935~chemotaxis | 17 | 39.53 | 8.58E-21 | CXCL1, CCL3, IL6, CCL2, IL8, CXCL2, CCL19, CXCL6, CCL5, CXCL12, CCL4, IL10, CXCL10, CXCL13, IFNG, FGF2, PLAU |
| GOTERM\_BP\_FAT | GO:0042330~taxis | 17 | 39.53 | 8.58E-21 | CXCL1, CCL3, IL6, CCL2, IL8, CXCL2, CCL19, CXCL6, CCL5, CXCL12, CCL4, IL10, CXCL10, CXCL13, IFNG, FGF2, PLAU |
| GOTERM\_BP\_FAT | GO:0006954~inflammatory response | 19 | 44.19 | 9.06E-19 | CXCL1, IL6, CCL3, TNF, CCL2, APCS, IL8, CFB, CXCL2, CCL19, CXCL6, CCL5, CCL4, IL10, CXCL10, CXCL13, CFH, THBS1, FN1 |
| GOTERM\_BP\_FAT | GO:0006955~immune response | 23 | 53.49 | 4.99E-18 | CXCL1, IL6, CCL3, TNF, CCL2, IL8, CFB, CXCL2, CCL19, CXCL6, CCL5, CXCL12, CCL4, IL10, CXCL10, CXCL13, VEGFA, IFNG, CFH, LTF, IL12B, THBS1, IL2 |
| GOTERM\_BP\_FAT | GO:0006952~defense response | 22 | 51.16 | 9.72E-18 | CXCL1, IL6, CCL3, TNF, CCL2, APCS, IL8, CFB, CXCL2, CCL19, CXCL6, CCL5, CCL4, IL10, CXCL10, INHBA, CXCL13, IFNG, CFH, LTF, THBS1, FN1 |
| GOTERM\_BP\_FAT | GO:0007626~locomotory behavior | 17 | 39.53 | 5.22E-17 | CXCL1, CCL3, IL6, CCL2, IL8, CXCL2, CCL19, CXCL6, CCL5, CXCL12, CCL4, IL10, CXCL10, CXCL13, IFNG, FGF2, PLAU |
| GOTERM\_BP\_FAT | GO:0016477~cell migration | 16 | 37.21 | 1.87E-15 | IL6, TNF, CCL2, IL8, MMP14, CCL5, CXCL12, IL10, CTGF, IFNG, HBEGF, IL12B, THBS1, FGF2, PLAU, FN1 |
| GOTERM\_BP\_FAT | GO:0051674~localization of cell | 16 | 37.21 | 8.82E-15 | IL6, TNF, CCL2, IL8, MMP14, CCL5, CXCL12, IL10, CTGF, IFNG, HBEGF, IL12B, THBS1, FGF2, PLAU, FN1 |
| GOTERM\_BP\_FAT | GO:0048870~cell motility | 16 | 37.21 | 8.82E-15 | IL6, TNF, CCL2, IL8, MMP14, CCL5, CXCL12, IL10, CTGF, IFNG, HBEGF, IL12B, THBS1, FGF2, PLAU, FN1 |
|  |  |  |  |  |  |
| TOP GO TERMS (MF) ENRICHED TO PERIODONTITIS HBP DATASET |
|  | Term | Count | % | PValue | Genes |
| GOTERM\_MF\_FAT | GO:0005125~cytokine activity | 20 | 46.51 | 9.17E-25 | CXCL1, CCL3, IL6, TNF, CCL2, IL8, CXCL2, CCL19, CXCL6, CCL5, CXCL12, CCL4, IL10, CXCL10, INHBA, CXCL13, VEGFA, IFNG, IL12B, IL2 |
| GOTERM\_MF\_FAT | GO:0008009~chemokine activity | 12 | 27.91 | 6.47E-19 | CXCL1, CCL3, CCL2, IL8, CXCL13, CXCL2, CCL19, CXCL6, CCL5, CCL4, CXCL12, CXCL10 |
| GOTERM\_MF\_FAT | GO:0042379~chemokine receptor binding | 12 | 27.91 | 1.40E-18 | CXCL1, CCL3, CCL2, IL8, CXCL13, CXCL2, CCL19, CXCL6, CCL5, CCL4, CXCL12, CXCL10 |
| GOTERM\_MF\_FAT | GO:0008201~heparin binding | 10 | 23.26 | 1.95E-11 | CCL2, CTGF, VEGFA, HBEGF, ADAMTS1, CXCL6, GPNMB, THBS1, FGF2, FN1 |
| GOTERM\_MF\_FAT | GO:0008083~growth factor activity | 11 | 25.58 | 4.00E-11 | CXCL1, INHBA, IL6, CTGF, VEGFA, HBEGF, IL12B, FGF2, CXCL12, IL10, IL2 |
| GOTERM\_MF\_FAT | GO:0005539~glycosaminoglycan binding | 10 | 23.26 | 3.13E-10 | CCL2, CTGF, VEGFA, HBEGF, ADAMTS1, CXCL6, GPNMB, THBS1, FGF2, FN1 |
| GOTERM\_MF\_FAT | GO:0001871~pattern binding | 10 | 23.26 | 7.34E-10 | CCL2, CTGF, VEGFA, HBEGF, ADAMTS1, CXCL6, GPNMB, THBS1, FGF2, FN1 |
| GOTERM\_MF\_FAT | GO:0030247~polysaccharide binding | 10 | 23.26 | 7.34E-10 | CCL2, CTGF, VEGFA, HBEGF, ADAMTS1, CXCL6, GPNMB, THBS1, FGF2, FN1 |
| GOTERM\_MF\_FAT | GO:0030246~carbohydrate binding | 12 | 27.91 | 6.04E-09 | APCS, CCL2, CTGF, VEGFA, HBEGF, ADAMTS1, CXCL6, GPNMB, THBS1, FGF2, IL2, FN1 |
| GOTERM\_MF\_FAT | GO:0004175~endopeptidase activity | 8 | 18.60 | 1.30E-04 | CFB, MMP9, SERPINE1, LTF, ADAMTS1, MMP14, MMP2, PLAU |
| TOP GO TERMS (BP) ENRICHED TO PERIODONTITIS HBP DATASET |  |  |  |
|  | Term | List Total | Pop Hits | Pop Total | Fold Enrichment | Bonferroni | Benjamini | FDR |
| GOTERM\_BP\_FAT | GO:0009611~response to wounding | 43 | 530 | 13528 | 15.43 | 6.17E-22 | 6.17E-22 | 8.30E-22 |
| GOTERM\_BP\_FAT | GO:0006935~chemotaxis | 43 | 160 | 13528 | 33.43 | 1.03E-17 | 5.16E-18 | 1.39E-17 |
| GOTERM\_BP\_FAT | GO:0042330~taxis | 43 | 160 | 13528 | 33.43 | 1.03E-17 | 5.16E-18 | 1.39E-17 |
| GOTERM\_BP\_FAT | GO:0006954~inflammatory response | 43 | 325 | 13528 | 18.39 | 1.09E-15 | 3.63E-16 | 1.47E-15 |
| GOTERM\_BP\_FAT | GO:0006955~immune response | 43 | 690 | 13528 | 10.49 | 6.00E-15 | 1.50E-15 | 8.07E-15 |
| GOTERM\_BP\_FAT | GO:0006952~defense response | 43 | 615 | 13528 | 11.25 | 1.17E-14 | 2.34E-15 | 1.57E-14 |
| GOTERM\_BP\_FAT | GO:0007626~locomotory behavior | 43 | 274 | 13528 | 19.52 | 6.28E-14 | 1.05E-14 | 8.44E-14 |
| GOTERM\_BP\_FAT | GO:0016477~cell migration | 43 | 276 | 13528 | 18.24 | 2.27E-12 | 3.24E-13 | 3.05E-12 |
| GOTERM\_BP\_FAT | GO:0051674~localization of cell | 43 | 307 | 13528 | 16.40 | 1.05E-11 | 1.32E-12 | 1.42E-11 |
| GOTERM\_BP\_FAT | GO:0048870~cell motility | 43 | 307 | 13528 | 16.40 | 1.05E-11 | 1.32E-12 | 1.42E-11 |
|  |  |  |  |  |  |  |  |  |
| TOP GO TERMS (MF) ENRICHED TO PERIODONTITIS HBP DATASET |  |  |  |
|  | Term | List Total | Pop Hits | Pop Total | Fold Enrichment | Bonferroni | Benjamini | FDR |
| GOTERM\_MF\_FAT | GO:0005125~cytokine activity | 41 | 195 | 12983 | 32.48 | 1.19E-22 | 1.19E-22 | 1.07E-21 |
| GOTERM\_MF\_FAT | GO:0008009~chemokine activity | 41 | 46 | 12983 | 82.61 | 8.41E-17 | 4.21E-17 | 7.54E-16 |
| GOTERM\_MF\_FAT | GO:0042379~chemokine receptor binding | 41 | 49 | 12983 | 77.55 | 1.82E-16 | 6.08E-17 | 1.63E-15 |
| GOTERM\_MF\_FAT | GO:0008201~heparin binding | 41 | 103 | 12983 | 30.74 | 2.53E-09 | 6.32E-10 | 2.27E-08 |
| GOTERM\_MF\_FAT | GO:0008083~growth factor activity | 41 | 161 | 12983 | 21.64 | 5.20E-09 | 1.04E-09 | 4.66E-08 |
| GOTERM\_MF\_FAT | GO:0005539~glycosaminoglycan binding | 41 | 140 | 12983 | 22.62 | 4.07E-08 | 6.79E-09 | 3.65E-07 |
| GOTERM\_MF\_FAT | GO:0001871~pattern binding | 41 | 154 | 12983 | 20.56 | 9.55E-08 | 1.36E-08 | 8.55E-07 |
| GOTERM\_MF\_FAT | GO:0030247~polysaccharide binding | 41 | 154 | 12983 | 20.56 | 9.55E-08 | 1.36E-08 | 8.55E-07 |
| GOTERM\_MF\_FAT | GO:0030246~carbohydrate binding | 41 | 354 | 12983 | 10.73 | 7.85E-07 | 9.81E-08 | 7.03E-06 |
| GOTERM\_MF\_FAT | GO:0004175~endopeptidase activity | 41 | 375 | 12983 | 6.76 | 0.0167349 | 0.001873 | 0.151066 |

**Table 2.** List of up-regulated genes in periodontitis with corresponding references.

|  |  |  |
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| Symbol | Gene Name | Source (Paper) |
| ADAM8 | A disintegrin and metalloproteinase domain 8 | Milward *et al.* 2007 |
| ADAMTS1 | ADAM metallopeptidase with thrombospondin type 1 motif, 1  | Beikler *et al.* 2008 |
| ADFP | Adipose differentiation-related protein | Wright *et al.* 2011 |
| AKAP12 | A kinase (PRKA) anchor protein (gravin) 12 | Milward *et al.* 2007 |
| AREG | Amphiregulin (schwannoma-derived growth factor) | Milward *et al.* 2007 |
| ARG1 | Arginase, liver | Jönsson *et al.* 2011 |
| ARG2 | Arginase, type II | Milward *et al.* 2007 |
| ARHGAP8 | Homo sapiens rho GTPASE activating protein 8 | Kim *et al.* 2006 |
| ARL4A | ADP-ribosylation factor-like 4A | Wright *et al.* 2011 |
| ATP6V0A4 | ATPase, H+ transporting, lysosomal V0 subunit a4 | Jönsson *et al.* 2011 |
| BIRC1 | Baculoviral IAP repeat-containing 1 | Beikler *et al.* 2008 |
| BIRC3 | Baculoviral IAP repeat-containing 3 | Milward *et al.* 2007 |
| BTG2 | BTG family, member 2 | Wright *et al.* 2011 |
| C-JUN | jun proto-oncogene  | Beikler *et al.* 2008 |
| C-Kit | KIT v-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog (*Homo sapiens*) | Beikler *et al.* 2008 |
| C14orf111 | Chromosome 14 opend reading frame 111 | Wright *et al.* 2011 |
| C15orf48 | Chromosome 15 open reading frame 48 | Jönsson *et al.* 2011 |
| C16orf74 | Chromosome 16 open reading frame 74 | Jönsson *et al.* 2011 |
| CASP-10 | Caspase-10 | Kim *et al.* 2006 |
| CCL19 | Chemokine (C-C motif) ligand 19 | Jönsson *et al.* 2011 |
| CCL20 | Chemokine (C-C motif) ligand 20 | Milward *et al.* 2007 |
| CCND2 | Cyclin D2 | Milward *et al.* 2007 |
| CCR3 | Chemokine (C-C motif) receptor 3  | Beikler *et al.* 2008 |
| CD14 | CD14 molecule  | Wang *et al.* 2003 |
| CD15 | 3-fuctosyl-N-acetyl-lactosamine | Beikler *et al.* 2008 |
| CD177 | CD177 molecule | Jönsson *et al.* 2011 |
| CD27 | CD27 molecule  | Beikler *et al.* 2008 |
| CD38 | CD38 Molecule | Beikler *et al.* 2008 |
| CDKN3 | Cyclin-dependent kinase inhibitor 3 (CDK2-asociated dual specificity phosphatase) | Jönsson *et al.* 2011 |
| CEBPD | CCAAT/enhancer binding protein (C/EBP), delta  | Beikler *et al.* 2008 |
| CFH | Complement factor H | Abe *et al.*2011. |
| CGI-14 | CGI- 14 protein | Wright *et al.* 2011 |
| CH25H | Cholesterol 25-hydroxylase  | Beikler *et al.* 2008 |
| CKS2 | CDC28 protein kinase regulatory subunit 2 | Wright *et al.* 2011 |
| CMP | Carboxypeptidase M | Jönsson *et al.* 2011 |
| CRISP3 | Cysteine-ruch secretory protein 3 | Jönsson *et al.* 2011 |
| CRY1 | Cryptochromw 1 (photolyase-like) | Wright *et al.* 2011 |
| CSF1 | Colony stimulating factor 1 (macrophage) | Wright *et al.* 2011 |
| CTBP1 | C-terminal binding protein1 | Wright *et al.* 2011 |
| CUTL1 | Cut-like, CCAAT displacement protein (Drosophila) | Jönsson *et al.* 2011 |
| CXCL1 | Chemokine (C-X-C motif) ligand 1 | Abe *et al.*2011, Wright *et al.* 2011 |
| CXCL12 | Chemokine (C-X-C motif) ligand 12 | Abe *et al.*2011. |
| CXCL13 | Chemokine (C-X-C motif) ligand 13 (B-cell chemoattractant) | Jönsson *et al.* 2011 |
| CXCL2 | Chemokine (C-X-C motif) ligand 2 | Milward *et al.* 2007, Wright *et al.* 2011 |
| CXCL3 | Chemokine (C-X-C motif) ligand 3 | Beikler et al. 2008, Wright *et al.* 2011 |
| CXCL6 | Chemokine (C-X-C motif) ligand 6 (granulocyte chemotactic protein 2) | Jönsson *et al.* 2011 |
| CXCL9 | Chemokine (C-X-C motif) ligand 9  | Beikler *et al.* 2008 |
| CXCR1 | Chemokine (C-X-C motif) receptor 1  | Beikler *et al.* 2008 |
| CXCR4 | Chemokine (C-X-C motif) receptor 4  | Beikler *et al.* 2008 |
| CXD3 | Gap junction protein, delta 3 | Beikler *et al.* 2008 |
| DCT | Dopachrome tautomerase (dopachrome delta-isomerase, tyrosine-related protein 2) | Jönsson *et al.* 2011 |
| DDX3Y | DEAD (Asp-Glu-Ala-Asp) box polypeptide 3, Y-linked  | Wright *et al.* 2011 |
| DNAJB1 | DnaJ (Hsp40) homologue, subfamily B, member1 | Wright *et al.* 2011 |
| DNAJB9 | DnaJ (Hsp40) homolog, subfamily B, member 9 | Milward et al. 2007, Wright *et al.* 2011 |
| DNCL 12 | Dyneinm cytoplasmic, light intermediate polypeptide 2 | Wright *et al.* 2011 |
| DSC1 | Desmocollin 1 | Jönsson *et al.* 2011 |
| DSCR1 | Down syndrome critical region gene 1 | Beikler *et al.* 2008 |
| DUSP1 | Dual specificity phosphatase 1 | Wright *et al.* 2011 |
| DUSP2 | Dual specificity phosphatase 2  | Beikler *et al.* 2008 |
| DUSP6 | Dual specificity phosphatase 6 | Milward *et al.* 2007 |
| EPHA3 | EPH receptor A3 | Abe *et al.*2011. |
| EREG | Epiregulin | Milward *et al.* 2007 |
| ERO1L | ERO1-like (S. cerevisiase) | Jönsson *et al.* 2011 |
| F2RL1 | 60165928R1 NIH\_MGC\_70 H. *sapiens* cDNA clone | Wright *et al.* 2011 |
| FAM46C | Family with sequence similarity 46, member C | Jönsson *et al.* 2011 |
| FBXL14 | F-box and leucine-rich repeat protein 14 | Wright *et al.* 2011 |
| FEZ1 | Fasciculation and elongation protein zeta 1 (zygin I) | Milward *et al.* 2007 |
| FLJ14281 | Hypthetical protein FLJ14281 DnaJ (Hsp40) Homologue, subfamily B, member 14 | Wright *et al.* 2011 |
| FN1 | Fibronectin 1 | Abe *et al.*2011. |
| Fos | FBJ murine osteosarcoma viral oncogene homolog  | Bodet *et al*. 2007, Wright *et al.* 2011, Beikler *et al.* 2008, Tanabe *et al.* 2008 |
| FOSB | V-FOS FBJ murine osteosarcoma viral oncogene homolog B | Kim *et al.* 2006 |
| FOSL1 | FOS-like antigen 1 | Milward *et al.* 2007 |
| FUT3 | Fucosyltransferase 3 (galactoside 3(4)-L-fucosyltransferase, Lewis blood group) | Jönsson *et al.* 2011 |
| FUT5 | Fucosyltransferase 5 | Jönsson *et al.* 2011 |
| GADD45B | Growth arrest and DNA-damage-inducible, beta  | Beikler *et al.* 2008 |
| GDF15 | Growth differentiation factor 15 | Milward *et al.* 2007 |
| CLCA4 | Chloride channel, calcium activated, family member 4 | Jönsson *et al.* 2011 |
| GNPDA1 | Glucosamine-6-phosphate deaminase 1 | Wright *et al.* 2011 |
| GPB1 | G-protein β Subunit | Beikler *et al.* 2008 |
| GPR37 | G protein-coupled receptor 37 (endothelin receptor type B-like) | Jönsson *et al.* 2011 |
| GPR84 | G protein-coupled receptor 84  | Beikler *et al.* 2008 |
| GTL3 | Like; orthologue of mouse gene trap locus 3 | Wright *et al.* 2011 |
| GYS2 | Glycogen synthase 2 (liver) | Jönsson *et al.* 2011 |
| H1F0 | H1 hitone family, member 0 | Wright *et al.* 2011 |
| H2BFA | *Homo sapiens* cDNA clone IMAGE:2989839, with apprent retained intron | Wright *et al.* 2011 |
| HBA1 | Hemoglobin, alpha1 | Jönsson *et al.* 2011 |
| HBA2 | Hemoglobin, alpha 2 | Jönsson *et al.* 2011 |
| HBB | Hemoglobin, beta | Jönsson *et al.* 2011 |
| HBEGF | Heparin-binding EGF-like growth factor | Milward *et al.* 2007 |
| HERPUD1 | Homocysteine-inducible, endoplasmic reticulum stress-inducible, ubiquitin-like domain member 1 | Milward *et al.* 2007 |
| HES1 | Hairy and enhancer of split 1, (*Drosophila*) | Wright *et al.* 2011 |
| HHEX | Hematopoietically expressed homeobox  | Beikler *et al.* 2008 |
| HIST1H2AI | Histone 1, H2ai | Wright *et al.* 2011 |
| HIST1H3D | Histone 1, H3d | Wright *et al.* 2011 |
| HIST1H2BG | Histone cluster 1, H2bg | Wright *et al.* 2011 |
| HK1 | Hexokinase 1 | Wright *et al.* 2011 |
| HK2 | Hexokinase 2 | Milward *et al.* 2007 |
| HLA-DQB1 | Major histocompatibility complex, class11, DQ β1 | Wright *et al.* 2011 |
| HMGA2 | High mobility group AT-hook 2 /// high mobility group AT-hook 2 | Milward *et al.* 2007 |
| HMOX1 | [Heme oxygenase (decycling) 1](http://www.genecards.org/cgi-bin/carddisp.pl?gene=HMOX1&search=hmox1)  | Beikler *et al.* 2008, Wright *et al.* 2011 |
| HPK1 | Hematopoietic progenitor kinase 1 | Bodet *et al*. 2007. |
| HSPA1A | Heat shock 70kDa protein 1A | Wright *et al.* 2011 |
| HSPA1B | Heat shock 70kDa protein 1B | Wright *et al.* 2011 |
| HSPA6 | Unnamed protein product; heat-shock protein HSP70B | Wright *et al.* 2011 |
| HSPA8 | Heat shock 70kDa protein 8 | Wright *et al.* 2011 |
| HSPCA | Heat shock 90kDa protein 1, α | Wright *et al.* 2011 |
| HSPE1 | Heat shoch 10 kDa protein 1 (chaperonin 10) | Wright *et al.* 2011 |
| HSPH1 | Heat shock 105kDa/110 kDa protein 1 | Wright *et al.* 2011 |
| ICAM1 | IIntercellular adhesion molecule 1  | Beikler *et al.* 2008 |
| ID2 | Inhibitor of DNA binding 2, dominant negative helix-loo-helix protein | Wright *et al.* 2011 |
| IFI-15 | Interferon-induced protein IFI-15k | Kim *et al.* 2006 |
| IFRD1 | Interferon-related developmental regulator 1 | Milward *et al.* 2007 |
| IGF2BP3 | insulin-like growth factor 2 mRNA binding protein 3 | Jönsson *et al.* 2011 |
| IGFBP6 | Insulin-like growth factor 2 mRNA binding protein 3 | Jönsson *et al.* 2011 |
| IGJ | Immunoglobin J polypeptide, linker protein | Abe *et al.*2011. |
| IGSF6 | Immunoglobin supefamily, member 6 | Beikler *et al.* 2008 |
| IL10 | Interleukin *10* | Beikler *et al.* 2008 |
| IL11 | Interleukin *11* | Beikler *et al.* 2008 |
| IL12A | Interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation factor 1, p35)  | Beikler *et al.* 2008 |
| IL12B | Interleukin *12B* (natural killer cell stimulatory factor 2, cytotoxic lymphocyte maturation factor 2, p40)  | Beikler *et al.* 2008 |
| IL15RA | Interleukin 15 receptor, alpha  | Beikler *et al.* 2008 |
| IL16 | Interleukin *16* | Beikler *et al.* 2008 |
| IL18 | Interleukin *18* (interferon*-*gamma*-*inducing factor)  | Beikler *et al.* 2008 |
| IL24 | Interleukin-24 | Kim *et al.* 2006 |
| IL2R | Interleukin 2 receptor | Beikler *et al.* 2008 |
| IL8R | Interleukin 8 receptor | Beikler *et al.* 2008 |
| IL1A | Interleukin alpha | Wang *et al.* 2003 |
| IL1A | Interleukin 1, alpha | Milward *et al.* 2007 |
| IL1B | Interleukin 1, beta | Milward *et al.* 2007 |
| IL1F9 | Interleukin 1 family, member 9 | Milward *et al*. 2007 |
| IL32 | Interleukin 32 | Milward *et al.* 2007 |
| IL6 | interleukin 6 (interferon, beta 2)  | Tanabe *et al*. 2008, Wang *et al.* 2003 |
| IL6R | Interleukin 6 receptor | Jönsson *et al.* 2011 |
| IL8 | interleukin 8  | Tanabe *et al.* 2008, Milward *et al.* 2007, Wang *et al.* 2003 |
| IL 1B | Interleukin 1beta | Abe *et al.*2011, Wang *et al.* 2003 |
| INHBA | Inhibin, beta A (activin A, activin AB alpha polypeptide) | Milward *et al.* 2007 |
| LTA4H | Leukotriene A4 hydrolase | Beikler *et al.* 2008 |
| ITGB8 | Integrin, beta 8  | Beikler *et al.* 2008 |
| JNK | Mitogen-activated protein kinase 8 | Bodet *et al*. 2007. |
| Jun | *jun* proto-oncogene  | Bodet *et al*. 2007. |
| KLF13 | Kruppel-like factor 13 | Jönsson *et al.* 2011 |
| LCP2 | Lymphocyte cystolic protein 2 | Abe *et al.*2011. |
| LTF | Lactotransferrin | Kim *et al.* 2006 |
| MAFF | v-maf musculoaponeurotic fibrosarcoma oncogene homolog F (avian) | Milward *et al.* 2007, Wright *et al.* 2011 |
| MAFG | v-maf musculoaponeurotic fibrosarcoma oncogene homologue G (avian) | Wright *et al.* 2011 |
| MCP1 | Monocyte chemotactic protein-1 (Chemokine ligand 2) | Tanabe *et al*. 2008. |
| MGC23985 | Similar to AVLV472 | Jönsson *et al.* 2011 |
| MGC31930 | Colony-stimulating factor (CSF-1) precursor; Human macrophage-specfic colony stimulating factor (CSF-1) Mrnac, CSoFm1p; 1MetCe ScFd;s | Wright *et al.* 2011 |
| MGC5566 | Homo sapiens hypothetical protein MGC5566 | Kim *et al.* 2006 |
| MGP | Matrix Gla protein | Abe *et al.*2011. |
| MIAL | Otoraplin | Beikler *et al.* 2008 |
| MICAL2 | Microtubule associated monoxygenase, calponin and LIM domain containing 2 | Milward *et al.* 2007 |
| MKK1 | Mitogen-activated protein kinase kinase 1  | Tanabe *et al*. 2008. |
| MKK2 | Mitogen-activated protein kinase kinase 2  | Tanabe *et al*. 2008. |
| MKK3 | Mitogen-activated protein kinase 3 | Bodet *et al*. 2007. |
| MKK6 | Mitogen-activated protein kinase kinase 6 | Tanabe *et al*. 2008. |
| MKK6 | Mitogen-activated protein kinase 6 | Bodet *et al*. 2007. |
| MMD | Monocyte to macrophage differentiation-associated | Milward *et al.* 2007 |
| MMP1 | Matrix metalloproteinase-1 | Kim *et al.* 2006, Beikler *et al.* 2003 |
| MMP9 | Matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)  | Beikler *et al.* 2008 |
| MMP2 | matrix metallopeptidase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)  | Bodet *et al*. 2007. |
| MMP3 | Matrix metallopeptidase 3 (stromelysin 1, progelatinase | Bodet *et al*. 2007, Tanabe *et al.* 2008, Kim *et al*. 2006 |
| MS4A1 | Membrane-spanning 4-domains, subfamily A, member 1 | Abe *et al.*2011, Jönsson *et al.* 2011 |
| MSK1 | Mitigen- and stress-activated protein kinase 1 | Bodet *et al*. 2007. |
| MT1H | Metallothionein 1H | Wright *et al.* 2011 |
| MT2A | Metallothionein 12A | Wright *et al.* 2011 |
| MT1L | Metallothionein IL | Wright *et al.* 2011 |
| MTIX | Metallothionein 1X | Wright *et al.* 2011 |
| MX1 | [Myxovirus (influenza virus) resistance 1, interferon-inducible protein p78 (mouse)](http://www.genecards.org/cgi-bin/carddisp.pl?gene=MX1&search=mx1)  | Beikler *et al.* 2008 |
| NEK1 | NIMA (never in mitosis gene a)-related kinase 1 | Jönsson *et al.* 2011 |
| NFkB p50 | NF-kappa-B p50 | Bodet *et al*. 2007, Tanabe *et al.* 2008 |
| NFkB p65 | NF-kappa-B p65 | Bodet *et al*. 2007, Tanabe *et al*. 2008 |
| NR4A1 | Nuclear receptor subfamily4, group A, member 1 | Wright *et al.* 2011 |
| NR4A2 | Nuclear receptor subfamily 4, group A, member 2 | Wright *et al.* 2011 |
| NSFL1C | NSFL1 (p9) cofactor (p47) | Wright *et al.* 2011 |
| ODC1 | Ornithine decarboxylase 1 | Wright *et al.* 2011 |
| OMD | Osteomodulin | Abe *et al.*2011. |
| ORM1 | Orosomucoid 1 | Wright *et al.* 2011 |
| OSM | Oncostatin M | Wright *et al.* 2011 |
| Osteoglycin | Osteoglycin | Abe *et al.*2011. |
| p38 MAPK | p38 Mitogen-activated protein kinase | Bodet *et al*. 2007. |
| PAPSS2 | 3'-phosphoadenosine 5'-phosphosulfate synthase 2 | Jönsson *et al.* 2011 |
| PDE4B | Phosphodiesterase 4B, cAMP-specific  | Beikler *et al.* 2008 |
| PDGFD | Platelet-derived growth factor D | Abe *et al.*2011. |
| PDZRN4 | PDZ domain containing RING finger 4 | Jönsson *et al.* 2011 |
| PFKFB3 | 6-Phosphofructo-2-kinase/fructose-2,6-biphosphatase 3 | Wright *et al.* 2011 |
| PGM3 | Phosphoglucomutase 3 | Milward *et al.* 2007 |
| PHLDA1 | Pleckstrin homology-like domain, family A, member 1 | Milward *et al.* 2007, Jönsson *et al.* 2011 |
| PHLDA2 | Plecktrin homology-like domainm family A, member 2 | Wright *et al.* 2011 |
| PLAU | Plasminogen activator, Urokinase | Milward *et al.* 2007 |
| PLAUR | Plasminogen activator, urokinase receptor | Milward *et al.* 2007 |
| POU2AF1 | POU domain, class 2, associating factor 1 | Jönsson *et al.* 2011 |
| PPAP2B | Phosphatidic acid phosphatase type 2B | Wright *et al.* 2011 |
| PPP1R3C | Protein phosphatase 1, regulatory (inhibitor) subunit 3C | Jönsson *et al.* 2011 |
| PRG1 | p53-responsive gene 1  | Beikler *et al.* 2008 |
| PTDSR | Phophatidylserine receptor | Wright *et al.* 2011 |
| PTP4A1 | 60213508F1 NIH\_MGC\_81 H. *sapiens* cDNA clone | Wright *et al.* 2011 |
| PTX3 | Pentraxin 3, long  | Beikler *et al.* 2008 |
| PYGL | Phosphorylase, glycogen; liver (Hers disease, glycogen storage disease type VI) | Jönsson *et al.* 2011 |
| QSER1 | Glutamine and serine rich 1 | Jönsson *et al.* 2011 |
| RAD9A | RAD9 homologue A (*S. pombe*) | Wright *et al.* 2011 |
| RGS1 | Regulator of G-protein signalling 1 | Beikler *et al.* 2008 |
| RGS4 | Regulator of G-protein signalling 4 | Jönsson *et al.* 2011 |
| RBM25 | RNA binding motif protein 25 | Jönsson *et al.* 2011 |
| RNASE6 | Ribonuclease, Rnase A family, K6 | Wright *et al.* 2011 |
| RP1-14N1.3 | Filaggrin 2 | Jönsson *et al.* 2011 |
| RSAD2 | Radical S-adenosyl methionine domain containing 2 | Jönsson *et al.* 2011 |
| SAA1 | Serum amyloid A1 | Jönsson *et al.* 2011 |
| SACS | Spastic ataxia of Charlevoix-Saguenay (sacsin) | Milward *et al.* 2007 |
| SAMSN1 | SAM domain, SH3 domain and nuclear localization signals 1 | Abe *et al.*2011. |
| SCARA3 | Scavenger receptor class A member 5 | Abe *et al.*2011. |
| SCG5 | Secretory granule, neuroendocrine protein 1 (7B2 protein) | Milward *et al.* 2007 |
| SEC31L1 | SEC31-like 1 (S. cerevisiae) | Milward *et al.* 2007 |
| SEPHS2 | Selenophosphate synthetase 2 | Wright *et al.* 2011 |
| SERPINB2 | Serine (or cysteine)proteinase inhibitor, clade B (ovalbumin), member 2 | Milward *et al.* 2007 |
| Serpine1 | Serpine peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1  | Beikler *et al.* 2008 |
| SILV | Silver homolog (mouse) | Jönsson *et al.* 2011 |
| SLC19A2 | Solute carrier family 19 (thiamine transporter), member 2 | Wright *et al.* 2011 |
| SOCS1 | Suppressor of cytokine signaling 1  | Beikler *et al.* 2008 |
| SOD2 | Superoxide dismutase 2, mitochondrial | Milward *et al.* 2007, Wright *et al.* 2011 |
| SOX9 | SRY (sex determining region Y)-box 9 | Milward *et al.* 2007 |
| SUI1 | Putatuive translation initiation factor | Wright *et al.* 2011 |
| TAK1 | TGF-beta activated kinase 1 | Bodet *et al*. 2007. |
| TANK | TRAF family member-associated NFKB activator  | Beikler *et al.* 2008 |
| TBC1D2 | TBC1 domain family, member 2 | Wright *et al.* 2011 |
| TBK1 | TANK-binding kinase 1  | Bodet *et al*. 2007. |
| TIMP1 | TIMP metallopeptidase inhibitor 1  | Bodet *et al*. 2007. |
| TIMP2 | TIMP metallopeptidase inhibitor 2  | Bodet *et al*. 2007. |
| TIPARP | TCDD-inducible poly(ADP-ribose) polymerase | Wright *et al.* 2011 |
| TLR3 | Toll-like receptor 3 | Beikler *et al.* 2008 |
| TLR2 | Toll-like receptor 2  | Wang *et al.* 2003, Beikler *et al.* 2008 |
| TLR4 | Toll-like receptor 4  | Wang *et al.* 2003 |
| TMPRSS2 | Transmembrane protease, serine 2 | Jönsson *et al.* 2011 |
| TNC | Tenascin C (hexabrachion) | Milward *et al.* 2007 |
| TNFAIP3 | Tumor necrosis factor, alpha-induced protein 3 | Milward *et al.* 2007, Beikler *et al.* 2008 |
| TNFA | Tumour necrosis factor-alpha | Wang *et al.* 2003 |
| TNFRSF9 | Tumor necrosis factor receptor superfamily, member 9  | Beikler *et al.* 2008 |
| TNFSF10 | Tumor necrosis factor (ligand) superfamily, member 10  | Beikler *et al.* 2008 |
| TRAF1 | TNF reception-associated factor 1 | Beikler *et al.* 2008 |
| UBD | Ubiquitin D | Jönsson *et al.* 2011 |
| UQCRC2 | Ubiquinol-cytochrome c reductase core protein II | Jönsson *et al.* 2011 |
| UQCRFS1 | Ubiquinol-cytochrome c reductase, Rieske iron-sulphur plypeptide 1 | Wright *et al.* 2011 |
| USP1 | Ubiquitin specific- peptidase 1 | Jönsson *et al.* 2011 |
| VCAM1 | Vascular cell adhesion molecule 1  | Beikler *et al.* 2008 |
| VCAN | Versican | Beikler *et al.* 2008 |
| VEGF | Vascular endothelial growth factor | Wright *et al.* 2011 |
| VGF | VGF nerve growth factor inducible | Wright *et al.* 2011 |
| WIPI1 | WD40 repeat protein Interacting with phospholnositides of 49 kDa | Milward *et al.* 2007 |
| ZFP91 | Zinc finger protein 91 homolog (mouse) | Jönsson *et al.* 2011 |

**Table. 3.** List of down-regulated genes in periodontitis with corresponding references.

|  |  |  |
| --- | --- | --- |
| Symbol | Gene Name | Source (Paper) |
| APCS | Amyloid P component, serum  | Beikler *et al.* 2008 |
| ATP10B | ATPase, class V, type 10B | Abe *et al.*2011. |
| BCL2A1 | BCL2-related protein A1  | Beikler *et al.* 2008 |
| BIRC2 | Baculoviral IAP repeat containing 2  | Beikler *et al.* 2008 |
| BIRC3 | Baculoviral IAP repeat containing 3  | Beikler *et al.* 2008 |
| C21orf91 | C21orf91 | Wright *et al.* 2011 |
| C3 | Complement component 3  | Beikler *et al.* 2008 |
| CCL2 | Chemokine (C-C motif) ligand 2  | Beikler *et al.* 2008 |
| CCL3 | Chemokine (C-C motif) ligand 3  | Beikler *et al.* 2008 |
| CCL4 | Chemokine (C-C motif) ligand 4  | Beikler *et al.* 2008 |
| CCL5 | Chemokine (C-C motif) ligand 5  | Beikler *et al.* 2008 |
| CCR1 | Chemokine (C-C motif) receptor 1  | Beikler *et al.* 2008 |
| CCR2A | Chemokine (C-C motif) receptor 2 isoform a | Beikler *et al.* 2008 |
| CCR2B | Chemokine (C-C motif) receptor 2 isoform b | Beikler *et al.* 2008 |
| ITGAX | Integrin, alpha X (complement component 3 receptor 4 subunit)  | Beikler *et al.* 2008 |
| CD14 | CD14 molecule | Beikler *et al.* 2008 |
| CD20 | Membrane-spanning 4-domains, subfamily A, member 1  | Beikler *et al.* 2008 |
| CD36 | CD36 molecule | Abe *et al.*2011. |
| CD40 | CD40 molecule, TNF receptor superfamily member 5  | Beikler *et al.* 2008 |
| CD7 | CD7 molecule  | Beikler *et al.* 2008 |
| CD8 | CD8 molecule  | Beikler *et al.* 2008 |
| CFB | Complement factor B | Beikler *et al.* 2008 |
| CLCA2 | Chloride channel, calcium activated, family member 2 | Milward *et al.* 2007 |
| F3 |  -  | Beikler *et al.* 2008 |
| COL7A1 | Collagen, type VII, alpha 1  | Beikler *et al.* 2008 |
| COX2 | Cyclooxygenase-2 | Beikler *et al.* 2008 |
| CRIP2 | Cysteine-rich protein 2 | Milward *et al.* 2007 |
| CRP | C-reactive protein, pentraxin-related  | Beikler *et al.* 2008 |
| CTGF | Connective tissue growth factor  | Beikler *et al.* 2008 |
| CXCL10 | Chemokine (C-X-C motif) ligand 10  | Beikler *et al.* 2008 |
| CXCL5 | Chemokine (C-X-C motif) ligand 5 | Beikler *et al.* 2008 |
| DMKN | Dermokine | Abe *et al.*2011. |
| DSC1 | Desmocollin-1 | Kim *et al.* 2006 |
| EDN1 | Endothelin 1  | Beikler *et al.* 2008 |
| EGFR | Epidermal growth factor receptor | Milward *et al.* 2007, Beikler et al. 2008 |
| EGFR | Epidermal growth factor receptor | Milward *et al.* 2007 |
| EPB42 | Erythroctye membrane protein band4.1 like 4B | Abe *et al.*2011. |
| EPPK1 | Epiplakin | Abe *et al.*2011, Milward *et al.* 2007 |
| FABP4 | Fatty acid binding protein 4, adipocyte | Milward *et al.* 2007 |
| FAT2 | FAT tumor suppressor homolog 2 | Milward *et al.* 2007 |
| FGF2 | Fibroblast growth factor 2 (basic)  | Beikler *et al.* 2008 |
| FGFR3 | Fibroblast growth factor receptor 3 | Milward *et al.* 2007 |
| FLJ31821 | Hypothetical protein FLJ31821 | Wright *et al.* 2011 |
| FN1 | Fibronectin | Beikler *et al.* 2008 |
| GBP2 | Guanylate binding protein 2, interferon-inducible | Beikler *et al.* 2008 |
| GCH1 | GTP cyclohydrolase 1 | Beikler *et al.* 2008 |
| GLUL | Glutamate-ammonia ligase (glutamine synthase) | Milward *et al.* 2007 |
| GLUL | Glutamate-ammonia ligase (glutamine synthase) | Milward *et al.* 2007 |
| GM-CSF | colony stimulating factor 2 receptor, beta, low*-*affinity (granulocyte*-*macrophage)  | Beikler *et al.* 2008 |
| GPNMB | Glycoprotein (transmembrane) | Milward *et al.* 2007 |
| GTF21 | General transcription factor II, I | Milward *et al.* 2007 |
| HEG1 | HEG homolog 1 (zebrafish) | Milward *et al.* 2007 |
| HIG2 | Hypoxia-inducible protein 2 | Wright *et al.* 2011 |
| HLA-DRB3 | Major histocompatibility complex, classII, DR β3 | Wright *et al.* 2011 |
| HPGD | Hydroxyprostaglandin dehydrogenase 15-(NAD) | Milward *et al.* 2007 |
| HPGD | Hydroxyprostaglandin dehydrogenase 15-(NAD) | Milward *et al.* 2007 |
| HPR | Haptoglobin | Beikler *et al.* 2008 |
| HSXIAPAF1 | XIAP associated factor 1  | Beikler *et al.* 2008 |
| ID3 | Inhibitor of DNA binding 3 | Milward *et al.* 2007 |
| IFIT1 | Interferon-Induced Protein With Tetratricopeptide Repeats  | Beikler *et al.* 2008 |
| IFNG | interferon, gamma  | Beikler *et al.* 2008 |
| IGFBP2 | Insulin-like growth factor binding protein 2, 36 kDa | Milward *et al.* 2007 |
| IL1RA | Interleukin 1 receptor, type A | Beikler *et al.* 2008 |
| IL15 | Interleukin 15 | Beikler *et al.* 2008 |
| IL1A | Interleukin 1, alpha  | Beikler *et al.* 2008 |
| IL1B | Interleukin 1, beta | Beikler *et al.* 2008 |
| IL1F5 | Interleukin 36 receptor antagonist  | Beikler *et al.* 2008 |
| IL1F9 | Interleukin 36, gamma  | Beikler *et al.* 2008 |
| IL1R | Interleukin 36, gamma  | Beikler *et al.* 2008 |
| IL2 | Interleukin 2  | Beikler *et al.* 2008 |
| IL23A | Interleukin 23, α subunit p19 | Wright *et al.* 2011 |
| IL6 | Interleukin 6 (interferon, beta 2)  | Beikler *et al.* 2008 |
| IL7R | Interleukin 7 receptor  | Beikler *et al.* 2008 |
| IL8 | Interleukin 8  | Beikler *et al.* 2008 |
| IL9 | Interleukin 9 | Beikler *et al.* 2008 |
| IRF1 | Interferon regulatory factor 1  | Beikler *et al.* 2008 |
| IRF7 | Interferon regulatory factor 7  | Beikler *et al.* 2008 |
| ITGB4 | Integrin, beta 4 | Milward *et al.* 2007 |
| ITGB4 | Integrin, beta 4 | Milward *et al.* 2007 |
| JAG2 | Jagged 2 | Milward *et al.* 2007 |
| JAG2 | Jagged 2 | Milward *et al.* 2007 |
| Junb | Transcription factor Junb | Beikler *et al.* 2008 |
| KIAA1068 | K1AA1068 protein | Wright *et al.* 2011 |
| KLK5 | Kallikrein 5 | Milward *et al.* 2007 |
| KRT10 | Keratin 10 | Abe *et al.*2011. |
| KRT13 | Keratin 13 | Milward *et al.* 2007 |
| KRT14 | Keratin 14 | Milward *et al.* 2007 |
| KRT15 | Keratin 15 | Milward *et al.* 2007 |
| KRT17 | Keratin 17 | Abe *et al.*2011. |
| KRT2A | Keratin 2A | Kim *et al.* 2006 |
| KRT4 | Keratin 4 | Milward *et al.* 2007 |
| LOX | Lysyl oxidase | Milward *et al*. 2007 |
| LOX | Lysyl oxidase | Milward *et al.* 2007 |
| LOX | Lysyl oxidase | Milward *et al.* 2007 |
| MARCKS | Myristoylated alanine-rich protein kinase C substrate | Milward *et al.* 2007 |
| MDA5 | Melanoma Differentiation-Associated protein 5 | Beikler *et al.* 2008 |
| METTL7A | DKFZP586A0522 protein | Milward *et al.* 2007 |
| MMP12 | Matrix metalloproteinase 12 (macrophage elastase) | Milward *et al.* 2007, Beikler et al. 2008 |
| MMP13 | Matrix metalloproteinase 13 (collagenase 3) | Milward et al. 2007, Beikler et al. 2008 |
| MMP14 | Matrix metallopeptidase 14 (membrane-inserted)  | Beikler *et al.* 2008 |
| MMP15 | Matrix metallopeptidase 15 (membrane-inserted)  | Beikler *et al.* 2008 |
| MMP3 | Matrix metallopeptidase 3 (stromelysin 1, progelatinase | Beikler *et al.* 2008 |
| MMP8 | Matrix metallopeptidase 8 (neutrophil collagenase)  | Beikler *et al.* 2008 |
| MPPED2 | Chromosome 11 open reading frame 8 | Milward *et al.* 2007 |
| MXRA5 | Matrix-remodelling associated 5 | Milward *et al.* 2007 |
| NEDD9 | Neural precursor cell expressed, developmentally down-regulated 9 | Wright *et al.* 2011 |
| NEFL | Neurofilament, light polypeptide 68 kDa | Milward *et al.* 2007 |
| NFKB1 | Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 | Beikler *et al.* 2008 |
| NFKBIA | Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha  | Beikler *et al.* 2008 |
| NOS2A | Nitric oxide synthase 2, inducible | Beikler *et al.* 2008 |
| OLFML2A | Olfactomedin-like 2A | Milward *et al.* 2007 |
| PAI2 | Plasminogen activator inhibitor - 1 | Beikler *et al.* 2009 |
| PI3 | Peptidase inhibitor 3, skin-derived | Abe *et al.*2011. |
| PIWIL2 | Piwi-like 2 (Drosophila) | Wright *et al.* 2011 |
| PKP3 | Plakophilin 3 | Milward *et al.* 2007 |
| PLA2 | Phospholipase A2 | Beikler *et al.* 2008 |
| PLAU  | Urokinase | Beikler *et al.* 2008 |
| PLAUR | Urokinase Receptor | Beikler *et al.* 2008 |
| POF1B | Premature ovarian failurem 1B | Abe *et al.*2011. |
| PTBP1 | Polypyrimidine tract binding protein 1 | Milward *et al.* 2007 |
| PTGES | Prostaglandin E synthase  | Beikler *et al.* 2008 |
| REL | v-rel reticuloendotheliosis viral oncogene homolog (avian)  | Beikler *et al.* 2008 |
| RGS2 | Regulator of G-protein signaling 2 | Beikler *et al.* 2008 |
| RIP2 | Receptor-interacting serine-threonine kinase 2  | Beikler *et al.* 2008 |
| RIPK4 | Receptor-interacting serine-threonine kinase 4 | Milward *et al.* 2007 |
| RORA | RAR-related orphan recptor A | Abe *et al.*2011. |
| RPL37A | Ribosomal protein L37a | Milward *et al.* 2007 |
| SAA1 | serum amyloid A1 | Beikler *et al.* 2008 |
| SCD | Stearoyl-CoA desaturase (delta-9-desaturase) | Milward *et al.* 2007 |
| SELE | Selectin E  | Beikler *et al.* 2008 |
| SOD2 | Superoxide dismutase 2 | Beikler *et al.* 2008 |
| SREBF1 | Sterol regulatory element binding transcription factor 1 | Wright *et al.* 2011 |
| STON1 | Stoned B-like factor | Milward *et al.* 2007 |
| TG | Thyroglobulin | Wright *et al.* 2011 |
| THBS1 | Thrombospondin 1 | Milward *et al.* 2007 |
| TLR4 | Toll-like receptor 4  | Beikler *et al.* 2008 |
| TM7SF3 | TM7SF3 | Kim *et al.* 2006 |
| TNFAIP1 | Tumor necrosis factor α-induced protein 2 | Wright *et al.* 2011 |
| TNFA | Tumour necrosis factor α | Beikler *et al.* 2008 |
| TNFR | Tumour necrosis factor receptor | Beikler *et al.* 2008 |
| TNFSF13B | Tumor necrosis factor (ligand) superfamily, member 13b  | Beikler *et al.* 2008 |
| TRAF1 | TNF receptor-associated factor 1 | Wright *et al.* 2011 |
| TREM1 | Triggering receptor expressed on myeloid cells 1  | Beikler *et al.* 2008 |
| TTLL4 | Tubulin tyrosine ligase-like family, member 4 | Wright *et al.* 2011 |
| VILL | Villin-like | Wright *et al.* 2011 |
| WFDC5 | WAP four-disulfide core domain 5 | Abe *et al.*2011. |

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