Table S1: Description of the biomarkers and their gene symbol included in the pathway analysis.

Biomarker name	Official gene symbol	Brief description (from NCBI gene)
Adiponectin	ADIPOQ	Expressed exclusively in adipose tissue, but found circulating in the plasma. Involved in metabolic and hormonal processes.
Alpha-1-Antitrypsin (AAT)	SERPINA1	Secreted. It is a serine protease inhibitor that targets numerous proteolytic enzymes including elastase, thrombin and plasmin.
Alpha-2-Macroglobulin (A2Macro)	A2M	A protease inhibitor for a broad spectrum of proteases such as trypsin and collagenase.
Angiopoietin-2 (ANG-2)	ANGPT2	Ligand for the endothelial tyrosine kinase receptor and is an antagonist of angiopoietin-1.
B Lymphocyte Chemoattractant (BLC)	CXCL13	Preferentially promotes the migration of B lymphocytes expressing the receptor BLR-1.
Beta-2-Microglobulin (B2M)	B2M	Serum protein associated with major histocompatibility complex (MHC) class 1 heavy chain.
Brain-Derived Neurotrophic Factor (BDNF)	BDNF	Member of the nerve growth factor family that binds to BDNFR and promotes neuronal survival in the adult brain.
Complement C3 (C3)	C3	Plays a central role in the activation of the complement system and is required to activate classical and alternative complement pathways.
Eotaxin-1	CCL11	Part of a superfamily of secreted proteins involved in the immunoregulatory and inflammatory process. This chemokine is specific for eosinophils
Eotaxin-2	CCL24	Part of a superfamily of secreted proteins involved in the immunoregulatory and inflammatory process. Displays chemotactic activity on resting T lymphocytes, but not monocytes or activated T lymphocytes.
Eotaxin-3	CCL26	Part of a superfamily of secreted proteins involved in the immunoregulatory and inflammatory process. Displays chemotatic activity for blood eosinophils and basophils.
Factor VII	F7	A coagulation factor essential for hemostasis.
Ferritin	FTH1/FTL (heavy and light chains, respectively)	The major intracellular iron storage protein. It is composed of light and heavy chains.
Fibrinogen	FG -A/B/G	A blood borne glycoprotein involved in clotting, cell adhesion and spreading.
Haptoglobin	HP	Bind free plasma hemoglobin.
Immunoglobulin A (IgA)	IGHA1	Immunoglobulin A heavy constant alpha
Immunoglobulin M (IgM)	IGHM	Immunoglobulin M heavy constant

Biomarker name	Official gene symbol	Brief description (from NCBI gene)
Insulin-like Growth Factor-Binding Protein 2 (IGFBP-2)	IGFBP2	Can be found intracellularly or in the bloodstream. High expression levels promote growth of several different tumors or may be used to predict patient recovery.
Intercellular Adhesion Molecule 1 (ICAM-1)	ICAM1	A surface glycoprotein typically expressed on endothelial cells and immune cells. It binds to CD11/CD18 type integrins.
Interleukin-1 alpha (IL-1 alpha)	IL1A	A pleiotropic cytokine produced by monocytes and macrophages. It is involved in various immune responses and inflammation processes.
Interleukin-1 beta (IL-1 beta)	IL1B	A cytokine produced by macrophages and processed to its active form by caspase-1. An important mediator of inflammatory processes.
Interleukin-1 receptor antagonist (IL-1ra)	IL1RN	Inhibits the activities of IL1A and IL1B and modulates IL1 mediated responses.
Interleukin-2 receptor alpha (IL-2 receptor alpha)	IL2RA	One of the subunits of the IL2 receptor (together with IL2RB and IL2RG).
Interleukin-12 Subunit p40 (IL-12p40)	IL12B	Expressed by activated macrophages and induce the development of Th1 cells.
Interleukin-12 Subunit p70 (IL-12p70)	IL12p70	The heterodimer of IL12A and IL12B. Produced by dendritic cells, macrophages and B-cells in response to antigenic stimulation. Stimulates production of interferon gamma and tumor necrosis factor alpha from T and natural killer (NK)cells
Interleukin-15 (IL-15)	IL15	Regulates activation and proliferation of T and NK cells. Activates JAK kinases and a variety of transcription activators such as STATs -3,-5 and -6.
Interleukin-17 (IL-17)	IL17A	A proinflammatory cytokine produces by activated T cells that regulates kinases of the NFkB and MAPK pathways. Can stimulate the induction/production of IL6, COX2 and nitric oxide.
Interleukin-23 (IL-23)	IL23A	Can activate the transcription of STAT4 and produce interferon gamma.
Latency-Associated Peptide of Transforming Growth Factor beta 1 (LAP TGF-b1)	TGFB1	Secreted ligand of TGF-beta which can activate SMAD family transcription factors.
Macrophage Migration Inhibitory Factor (MIF)	MIF	A lymphokine involved in cell-mediated immunity, immunoregulation and inflammation. Suppresses anti-inflammatory effects of glucocorticoids through the regulation of macrophage function.
Matrix Metalloproteinase-3 (MMP-3)	MMP3	Involved in the breakdown of the extracellular matrix. MMP3 is involved in the degradation of fibronectin, laminin, collagens and proteoglycans.

Biomarker name	Official gene symbol	Brief description (from NCBI gene)
Matrix Metalloproteinase-9 (MMP-9)	MMP9	Involved in the breakdown of the extracellular matrix. MM9 degrades type IV and V collagens.
MHC class I chain-related protein A (MICA)	MICA	Expressed on the cell surface but seems to act non-canonically as it does not associate beta-2-microglobin. Functions as a stress-induced antigen broadly recognized by intestinal epithelial gamma delta T cells.
Myoglobin	MB	Part of the globin superfamily. Predominantly express in skeletal and cardiac muscles. Plays a role in regulating nitric oxide levels.
Osteoprotegerin (OPG)	TNFRSF11B	Member of the TNF receptor superfamily that functions as a negative regulator of bone resorption. A key regulator of osteoclast development.
Plasminogen Activator Inhibitor 1 (PAI-1)	SERPINE1	Member of the serine proteinase inhibitor superfamily which acts as an inhibitor of fibrinolysis.
Stem Cell Factor (SCF)	KITLG	A pleotropic factor that appears to act in cell migration and is a requirement in hematopoesis.
T-Cell-Specific Protein RANTES (RANTES)	CCL5	A chemokine involved in the immunoregulatory and inflammatory process. Functions as a chemoattractant for blood monocytes, memory T helper cells and eosinophils.
Tissue Inhibitor of Metalloproteinases 1 (TIMP-1)	TIMP1	Natural inhibitors of MMPs, but can also promote cell proliferation and may have anti-apoptotic functions.
Tumor Necrosis Factor Receptor I (TNFRI)	TNFRSF1A	A receptor found in both membrane and soluble forms that interacts with TNF-alpha. Plays a role in cell survival, apoptosis and inflammation.
Tumor necrosis factor receptor 2 (TNFR2)	TNFRSF1B	Forms a heterocomplex with TNF receptor 1 that mediates the recruitment of two anti-apoptotic proteins that possess E3 ligase activity.
Vascular Cell Adhesion Molecule-1 (VCAM-1)	VCAM1	A type I membrane protein that mediates leukocyte-endothelial cell adhesion and signal transduction.
Vascular Endothelial Growth Factor (VEGF)	VEGFA	Induces proliferation and migration of vascular endothelial cells and is essential for angiogenesis.
Vitamin D-Binding Protein (VDBP)	GC	A multifunctional protein found in the plasma, ascitic fluid, cerebrospinal fluid and on the surfaces of many cells. It binds to vitamin D.
Erythropoietin (EPO)	EPO	Binds to the erythropoietin receptor to promote red blood cell production in the bone marrow. Expression is upregulated under hypoxic conditions.
High-density lipoprotein (HDL)	APOA1	Encodes the major component of HDL in the plasma which promotes cholesterol efflux from tissues to the liver for excretion.
Low-density lipoprotein (LDL)	APOE	Essential for the normal catabolism of triglyceride-rich lipoprotein constituents.

Biomarker name	Official gene symbol	Brief description (from NCBI gene)
C-reactive protein (CRP)	CRP	Able to recognize foreign pathogens and damaged cells of the host and initiate initiation of host defense.
Interferon-γ (IFN-γ)	IFNG	A protein secreted by innate and adaptive immune cells that triggers a cellular response to viral and microbial infections.
Interleukin-6 (IL-6)	IL6	Functions in the inflammation and maturation of B cells. Primarily produced at sites of acute and chronic inflammation.
Interleukin-8 (IL-8)	CXCL8	Secreted by mononuclear macrophages, neutrophils, eosinophils, T lymphocytes, epithelial cells and fibroblasts. Functions as a chemotactic factor for neutrophils. Bacterial and viral products induce expression of IL8.
Interferon γ–Inducible Protein-10 (IP-10)	CXCL10	Encodes a chemokine. Binds to CXCR3 receptor that results in stimulation of monocytes, NK and T cell migration and modulation of adhesion molecule expression.
Interferon γ -Inducible T cell α Chemoattractant (ITAC)	CXCL11	A chemokine. Induces a chemotactic response in activated T cells and is the dominant ligand for CXCR3 receptor.
Leptin	LEP	Secreted by white adipocytes into circulation and plays a role in regulating energy homeostasis. Also involved in regulation of immune and inflammatory responses.
Osteocalcin (OCL)	BGLAP	Encodes a highly abundant bone protein secreted by osteoblasts which regulates bone remodeling. Serum osteocalcin levels may negatively correlate to metabolic syndrome.
Osteonectin (ONN)	SPARC	Encodes a matrix-associated protein that is required for the collagen in bone to become calcified.
Osteopontin (OPN)	SPP1	Involves in the attachment of osteoclasts to the mineralized bone matrix. Also acts as a cytokine that upregulates the expression of IFNG and IL12.
Serum Amyloid A (SAA)	SAA1	A major acute phase protein that is highly expressed in response to inflammation and tissue injury. Plays an important role in HDL and cholesterol metabolism and homeostasis, respectively.

Table S2: Top 20 pathways in Cluster 1

Term	P-value	Adjusted P-value	Odds Ratio	Combined Score	Genes
Oncostatin M	2.18E-13	3.30E-10	38.585209	1124.859446	CRP;ANGPT2;CCL5;ADIPOQ;IGFBP2;SERPINE1;HP;TIMP1;ICAM1
RAGE pathway	2.76E-12	2.09E-09	133.3333333	3548.682453	ANGPT2;TGFB1;ADIPOQ;SERPINE1;TIMP1;ICAM1
Vitamin B12 metabolism	5.43E-08	2.73E-05	102.5641026	1715.805366	CRP;CCL5;SERPINE1;ICAM1
Response to elevated platelet cytosolic calcium	3.63E-07	1.37E-04	64.25702811	952.7785806	TGFB1;SPARC;SERPINE1;TIMP1
Interleukin-11 pathway	5.99E-07	1.81E-04	173.9130435	2491.836273	TGFB1;TIMP1;ICAM1
TWEAK regulation of gene expression	9.87E-07	2.49E-04	148.1481481	2048.607828	CCL5;SERPINE1;ICAM1
Selenium pathway	1.14E-05	0.002455403	66.66666667	758.894624	CRP;SERPINE1;ICAM1
Folate metabolism	1.32E-05	0.002489863	63.49206349	713.393721	CRP;SERPINE1;ICAM1
Interleukin-6 regulation of target genes	4.75E-05	0.005980516	190.4761905	1896.039371	TIMP1;ICAM1
Urokinase-type plasminogen activator (uPA) and uPAR-mediated signaling	4.44E-04	0.037269056	63.49206349	490.1006395	TGFB1;SERPINE1
Influenza factor interactions with host	0.004492068	0.242250831	222.2222222	1201.209337	TGFB1
Eosinophils in the chemokine network of allergy	0.005985243	0.282428646	166.6666667	853.0763944	CCL5
Visceral fat deposits and the metabolic syndrome	0.005985243	0.291539248	166.6666667	853.0763944	ADIPOQ
Transcription factor regulation of microRNAs related to cardiac hypertrophy	0.005985243	0.301257223	166.6666667	853.0763944	TGFB1
Inhibition of matrix metalloproteinases	0.006731046	0.30799637	148.1481481	740.8925408	TIMP1
Dissolution of fibrin clot	0.005985243	0.311645403	166.6666667	853.0763944	SERPINE1
B lymphocyte cell surface molecules	0.008221088	0.335509272	121.2121212	581.9457822	ICAM1
Monocyte and its surface molecules	0.008221088	0.344828974	121.2121212	581.9457822	ICAM1

Term	P-value	Adjusted P-value	Odds Ratio	Combined Score	Genes
CTL mediated immune response against target cells	0.009709044	0.349063256	102.5641026	475.353583	ICAM1
TGF-beta signaling in gastrointestinal stem cells	0.008221088	0.35468123	121.2121212	581.9457822	TGFB1

Table S3: Top 20 pathways in Cluster 2

Term	P-value	Adjusted P-value	Odds Ratio	Combined Score	Genes
Cytokine-cytokine receptor interaction	5.61E-15	8.47E-12	41.92872117	1375.873735	CXCL10;IL6;KITLG;EPO;IL23A;IL2RA;LEP;TNFRSF11B;TNFRSF1B;TNFRSF1A
Interleukin-1 regulation of extracellular matrix	7.20E-10	5.43E-07	55.55555556	1169.565723	C3;IL1RN;IL6;MMP3;TNFRSF11B;ICAM1
Thymic stromal lymphopoietin (TSLP) pathway	1.35E-08	6.79E-06	61.72839506	1118.604074	CXCL10;IL6;IL2RA;TNFRSF11B;ICAM1
Leptin influence on immune response	3.72E-08	1.40E-05	50.50505051	864.0427745	CRP;IL1RN;IL6;IL2RA;TNFRSF11B
Erythrocyte differentiation pathway	2.77E-07	5.97E-05	222.2222222	3355.71187	IL6;KITLG;EPO
Cells and molecules involved in local acute inflammatory response	4.13E-07	7.79E-05	196.0784314	2882.35841	C3;IL6;ICAM1
Hematopoietic cell lineage	1.02E-06	1.40E-04	50.50505051	696.6882003	IL6;KITLG;EPO;IL2RA
TWEAK regulation of gene expression	1.77E-06	2.22E-04	123.4567901	1635.392515	CXCL10;IL6;ICAM1
Inflammatory response pathway	2.45E-06	2.84E-04	111.1111111	1435.608352	IL2RA;TNFRSF1B;TNFRSF1A
Vitamin B12 metabolism	1.32E-05	0.001241833	64.1025641	720.4129978	CRP;IL6;ICAM1
SODD/TNFR1 signaling pathway	5.02E-05	0.003297152	185.1851852	1833.160517	TNFRSF1B;TNFRSF1A
CTL mediated immune response against target cells	5.93E-05	0.003732289	170.9401709	1663.682827	B2M;ICAM1
Interleukin-17 signaling pathway	7.98E-05	0.004632824	148.1481481	1397.978819	IL6;KITLG
Hematopoiesis regulation by cytokines	7.98E-05	0.004818137	148.1481481	1397.978819	IL6;EPO
Acetylation and deacetylation of RelA in the nucleus	9.11E-05	0.005095845	138.8888889	1292.133026	TNFRSF1B;TNFRSF1A

Term	P-value	Adjusted P-value	Odds Ratio	Combined Score	Genes
Transcriptional activity regulation by PML	1.16E-04	0.005841261	123.4567901	1118.700756	TNFRSF1B;TNFRSF1A
Modulation of interferon signaling by chaperones	1.91E-04	0.008757636	96.61835749	827.1677915	TNFRSF1B;TNFRSF1A
NF-kappaB signaling pathway	2.09E-04	0.009267855	92.59259259	784.6951641	TNFRSF1B;TNFRSF1A
Low-density lipoprotein (LDL) pathway during atherogenesis	0.005388466	0.12915212	185.1851852	967.313805	IL6
Activation of C3 and C5	0.005388466	0.131235219	185.1851852	967.313805	C3

Table S4: Top 20 pathways in Cluster 3

Term	P-value	Adjusted P-value	Odds Ratio	Combined Score	Genes
Oncostatin M	4.95E-13	3.74E-10	46.76995031	1325.181907	CRP;CCL5;SERPINE1;HP;CCL2;TIMP1;ICAM1;VEGFA
RAGE pathway	2.57E-13	3.89E-10	181.8181818	5270.643369	TGFB1;SERPINE1;CCL2;TIMP1;ICAM1;VEGFA
Vitamin B12 metabolism	4.45E-11	2.24E-08	174.8251748	4167.009539	CRP;CCL5;SERPINE1;CCL2;ICAM1
Response to elevated platelet cytosolic calcium	4.93E-10	1.86E-07	109.5290252	2347.167916	TGFB1;SPARC;SERPINE1;TIMP1;VEGFA
TWEAK regulation of gene expression	8.63E-10	2.61E-07	269.3602694	5621.642225	CCL5;SERPINE1;CCL2;ICAM1
Leptin influence on immune response	2.07E-09	5.20E-07	82.6446281	1652.697978	CRP;CCL5;CCL2;TIMP1;VEGFA
Selenium pathway	2.38E-08	5.13E-06	121.2121212	2127.882057	CRP;SERPINE1;CCL2;ICAM1
Folate metabolism	2.90E-08	5.47E-06	115.4401154	2003.550262	CRP;SERPINE1;CCL2;ICAM1
Interleukin-11 pathway	2.18E-07	3.29E-05	237.1541502	3637.807935	TGFB1;TIMP1;ICAM1
Malaria	2.54E-06	3.20E-04	106.9518717	1377.881166	TGFB1;CCL2;ICAM1
Interleukin-6 regulation of target genes	2.49E-05	0.001882589	259.7402597	2753.049316	TIMP1;ICAM1
Fibroblast growth factor 1	8.87E-05	0.005825605	139.8601399	1304.875962	SERPINE1;VEGFA
Neurophilin interactions with VEGF and VEGF receptor	0.002747205	0.094279093	363.6363636	2144.425861	VEGFA
Kit receptor transcriptional targets	0.002747205	0.09647163	363.6363636	2144.425861	VEGFA
MSP/RON receptor signaling pathway	0.003295826	0.103681183	303.030303	1731.848048	CCL2
Low-density lipoprotein (LDL) pathway during atherogenesis	0.003295826	0.105887165	303.030303	1731.848048	CCL2
Influenza factor interactions with host	0.003295826	0.10818906	303.030303	1731.848048	TGFB1
Eosinophils in the chemokine network of allergy	0.004392244	0.130044883	227.2727273	1233.61703	CCL5
Transcription factor regulation of microRNAs related to cardiac hypertrophy	0.004392244	0.132645781	227.2727273	1233.61703	TGFB1
Dissolution of fibrin clot	0.004392244	0.135352838	227.2727273	1233.61703	SERPINE1

Table S5: Top 20 pathways in Cluster 4

Term	P-value	Adjusted P-value	Odds Ratio	Combined Score	Genes
Oncostatin M	6.76E-14	1.02E-10	27.20751917	825.0626424	CRP;FGB;IL6;ANGPT2;ADIPOQ;IGFBP2;MMP3;HP;TIMP1;B2M;ICAM1
RAGE pathway	9.58E-13	7.23E-10	89.74358974	2483.577873	IL6;ANGPT2;VCAM1;ADIPOQ;TNFRSF11B;TIMP1;ICAM1
TNF-alpha effects on cytokine activity, cell motility, and apoptosis	3.23E-10	1.62E-07	39.88603989	871.7021773	CXCL10;IL6;CXCL11;VCAM1;IL2RA;IGFBP2;ICAM1
Cells and molecules involved in local acute inflammatory response	5.28E-09	1.59E-06	180.9954751	3449.754807	C3;IL6;VCAM1;ICAM1
TWEAK regulation of gene expression	3.86E-08	9.71E-06	113.960114	1945.38053	CXCL10;IL6;VCAM1;ICAM1
Integrin beta-2 pathway	5.21E-08	1.12E-05	106.1007958	1779.299731	C3;FGB;VCAM1;ICAM1
Thymic stromal lymphopoietin (TSLP) pathway	1.01E-07	1.90E-05	42.73504274	688.5228567	CXCL10;IL6;IL2RA;TNFRSF11B;ICAM1
Leptin influence on immune response	2.75E-07	4.62E-05	34.96503497	528.1388796	CRP;IL6;IL2RA;TNFRSF11B;TIMP1
Interleukin-6 regulation of target genes	7.03E-07	9.65E-05	164.8351648	2335.338597	SERPINA1;TIMP1;ICAM1
Inflammatory response pathway	7.74E-06	9.73E-04	76.92307692	905.362349	IL2RA;TNFRSF1B;TNFRSF1A
SODD/TNFR1 signaling pathway	1.06E-04	0.006426335	128.2051282	1172.864094	TNFRSF1B;TNFRSF1A
CTL mediated immune response against target cells	1.26E-04	0.007026572	118.3431953	1062.96856	B2M;ICAM1
Adhesion and diapedesis of lymphocytes	1.46E-04	0.007898584	109.8901099	970.1903532	VCAM1;ICAM1
Erythrocyte differentiation pathway	1.69E-04	0.007968166	102.5641026	890.9158971	IL6;KITLG
Interleukin-17 signaling pathway	1.69E-04	0.008225203	102.5641026	890.9158971	IL6;KITLG
Acetylation and deacetylation of RelA in the nucleus	1.93E-04	0.008563958	96.15384615	822.4708919	TNFRSF1B;TNFRSF1A
Transcriptional activity regulation by PML	2.45E-04	0.010017702	85.47008547	710.4571392	TNFRSF1B;TNFRSF1A
Modulation of interferon signaling by chaperones	4.04E-04	0.014196982	66.88963211	522.6348271	TNFRSF1B;TNFRSF1A
Low-density lipoprotein (LDL) pathway during atherogenesis	0.007775574	0.152482038	128.2051282	622.6625614	IL6
Activation of C3 and C5	0.007775574	0.154488381	128.2051282	622.6625614	C3

Table S6: Top 20 GO terms-Biological Processes in *Cluster 1*

Term ID	term description	false discovery rate	matching proteins in your network
GO:0009605	response to external stimulus	8.19E-09	ADIPOQ,ANGPT2,BDNF,CCL24,CCL5,CRP,HP,ICAM1,IGFBP2,SAA1,SERPINE1,SPARC,TGFB1
GO:0070887	cellular response to chemical stimulus	4.19E-07	ADIPOQ,ANGPT2,BDNF,CCL24,CCL5,HP,ICAM1,IGFBP2,SAA1,SERPINE1,SPARC,TGFB1,TIMP1
GO:0006954	inflammatory response	4.68E-07	CCL24,CCL5,CRP,HP,ICAM1,SAA1,TGFB1,TIMP1
GO:0030334	regulation of cell migration	4.68E-07	ADIPOQ,ANGPT2,CCL24,CCL5,ICAM1,SERPINE1,SPARC,TGFB1,TIMP1
GO:0071310	cellular response to organic substance	5.14E-07	ADIPOQ,ANGPT2,BDNF,CCL24,CCL5,ICAM1,IGFBP2,SAA1,SERPINE1,SPARC,TGFB1,TIMP1
GO:0009617	response to bacterium	6.06E-07	ADIPOQ,CCL5,CRP,HP,ICAM1,SERPINE1,SPARC,TGFB1
GO:0010469	regulation of signaling receptor activity	6.89E-07	ADIPOQ,BDNF,CCL24,CCL5,SAA1,SERPINE1,TGFB1,TIMP1
GO:0048518	positive regulation of biological process	7.91E-07	ADIPOQ,ANGPT2,BDNF,CCL24,CCL5,CRP,HP,ICAM1,IGFBP2,IST1,SAA1,SERPINE1,SPARC,TGFB1,TIMP1
GO:0030155	regulation of cell adhesion	8.66E-07	ADIPOQ,ANGPT2,CCL5,ICAM1,IGFBP2,SAA1,SERPINE1,TGFB1
GO:0022603	regulation of anatomical structure morphogenesis	9.02E-07	ADIPOQ,ANGPT2,BDNF,CCL24,ICAM1,IST1,SERPINE1,SPARC,TGFB1
GO:0032879	regulation of localization	9.02E-07	ADIPOQ,ANGPT2,BDNF,CCL24,CCL5,CRP,ICAM1,SAA1,SERPINE1,SPARC,TGFB1,TIMP1
GO:1901700	response to oxygen-containing compound	1.11E-06	ADIPOQ,ANGPT2,CCL5,HP,ICAM1,IGFBP2,SERPINE1,SPARC,TGFB1,TIMP1
GO:0051239	regulation of multicellular organismal process	2.31E-06	ADIPOQ,ANGPT2,BDNF,CCL24,CRP,ICAM1,IST1,SAA1,SERPINE1,SPARC,TGFB1,TIMP1
GO:0051240	positive regulation of multicellular organismal process	2.31E-06	ADIPOQ,ANGPT2,BDNF,CCL24,ICAM1,IST1,SAA1,SERPINE1,SPARC,TGFB1
GO:0002687	positive regulation of leukocyte migration	3.41E-06	CCL24,CCL5,ICAM1,SERPINE1,TGFB1
GO:0051704	multi-organism process	3.41E-06	ADIPOQ,ANGPT2,CCL5,CRP,HP,ICAM1,IGFBP2,IST1,SERPINE1,SPARC,TGFB1
GO:0048522	positive regulation of cellular process	3.74E-06	ADIPOQ,BDNF,CCL24,CCL5,CRP,HP,ICAM1,IGFBP2,IST1,SAA1,SERPINE1,SPARC,TGFB1,TIMP1
GO:0006952	defense response	4.42E-06	CCL24,CCL5,CRP,HP,ICAM1,SAA1,SERPINE1,TGFB1,TIMP1
GO:0034284	response to monosaccharide	4.42E-06	ADIPOQ,ANGPT2,ICAM1,SPARC,TGFB1
GO:0050900	leukocyte migration	4.42E-06	ANGPT2,CCL24,CCL5,ICAM1,SAA1,TGFB1

Table S7: Top 20 GO terms-Biological Processes in *Cluster 2*

Term ID	term description	false discovery rate	matching proteins in your network
GO:0006954	inflammatory response	1.62E-16	C3,CRP,CXCL10,EPO,HP,ICAM1,IL1RN,IL23A,IL2RA,IL6,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0019221	cytokine-mediated signaling pathway	5.40E-15	B2M,CXCL10,EPO,ICAM1,IL1RN,IL23A,IL2RA,IL6,LEP,MMP3,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0006952	defense response	3.82E-13	B2M,C3,CRP,CXCL10,EPO,HP,ICAM1,IL1RN,IL23A,IL2RA,IL6,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0002376	immune system process	1.14E-12	B2M,C3,CRP,CXCL10,EPO,HP,ICAM1,IL1RN,IL23A,IL2RA,IL6,KITLG,LEP,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0009617	response to bacterium	1.14E-12	B2M,C3,CRP,CXCL10,EPO,HP,ICAM1,IL23A,IL6,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0002526	acute inflammatory response	8.65E-11	CRP,EPO,HP,ICAM1,IL1RN,IL6,SAA1
GO:0006950	response to stress	1.30E-10	B2M,C3,CRP,CXCL10,EPO,HP,ICAM1,IL1RN,IL23A,IL2RA,IL6,LEP,MMP3,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0006953	acute-phase response	4.98E-10	CRP,EPO,HP,IL1RN,IL6,SAA1
GO:0009605	response to external stimulus	1.18E-09	B2M,C3,CRP,CXCL10,EPO,HP,ICAM1,IL23A,IL6,LEP,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0006955	immune response	3.34E-09	B2M,C3,CXCL10,HP,ICAM1,IL1RN,IL23A,IL2RA,IL6,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0070887	cellular response to chemical stimulus	5.84E-09	B2M,CXCL10,EPO,HP,ICAM1,IL1RN,IL23A,IL2RA,IL6,LEP,MMP3,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0051239	regulation of multicellular organismal process	9.61E-09	B2M,C3,CRP,CXCL10,EPO,ICAM1,IL1RN,IL23A,IL2RA,IL6,LEP,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0032496	response to lipopolysaccharide	9.68E-09	B2M,CXCL10,EPO,ICAM1,IL6,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0050727	regulation of inflammatory response	2.32E-08	C3,IL23A,IL2RA,IL6,LEP,SAA1,TNFRSF1A,TNFRSF1B
GO:0050793	regulation of developmental process	2.51E-08	B2M,C3,CRP,CXCL10,EPO,ICAM1,IL1RN,IL23A,IL2RA,IL6,LEP,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0033993	response to lipid	3.88E-08	B2M,CXCL10,EPO,ICAM1,IL1RN,IL6,LEP,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0048583	regulation of response to stimulus	3.88E-08	B2M,C3,CXCL10,EPO,ICAM1,IL1RN,IL23A,IL2RA,IL6,KITLG,LEP,MMP3,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0010469	regulation of signaling receptor activity	4.13E-08	CXCL10,EPO,IL1RN,IL23A,IL6,KITLG,LEP,SAA1,TNFRSF11B

Term ID	term description	false discovery rate	matching proteins in your network
GO:0048519	negative regulation of biological process	5.80E-08	B2M,C3,CRP,CXCL10,EPO,HP,ICAM1,IL1RN,IL23A,IL2RA,IL6,LEP,MMP3,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B
GO:0065009	regulation of molecular function	7.77E-08	B2M,C3,CXCL10,EPO,HP,ICAM1,IL1RN,IL23A,IL2RA,IL6,KITLG,LEP,SAA1,TNFRSF11B,TNFRSF1B

Table S8: Top 20 GO terms-Biological Processes in *Cluster 3*

Term ID	term description	false discovery rate	matching proteins in your network
GO:0009617	response to bacterium	1.20E-07	CCL2,CCL5,CRP,HP,ICAM1,SERPINE1,SPARC,TGFB1
GO:0002685	regulation of leukocyte migration	2.25E-07	CCL2,CCL5,ICAM1,SERPINE1,TGFB1,VEGFA
GO:0009605	response to external stimulus	3.58E-07	BDNF,CCL2,CCL5,CRP,HP,ICAM1,SERPINE1,SPARC,TGFB1,VEGFA
GO:0030334	regulation of cell migration	3.58E-07	CCL2,CCL5,ICAM1,SERPINE1,SPARC,TGFB1,TIMP1,VEGFA
GO:0006954	inflammatory response	4.93E-07	CCL2,CCL5,CRP,HP,ICAM1,TGFB1,TIMP1
GO:0002576	platelet degranulation	8.46E-07	SERPINE1,SPARC,TGFB1,TIMP1,VEGFA
GO:0002687	positive regulation of leukocyte migration	8.46E-07	CCL5,ICAM1,SERPINE1,TGFB1,VEGFA
GO:0010469	regulation of signaling receptor activity	8.46E-07	BDNF,CCL2,CCL5,SERPINE1,TGFB1,TIMP1,VEGFA
GO:0032496	response to lipopolysaccharide	8.46E-07	CCL2,CCL5,ICAM1,SERPINE1,SPARC,TGFB1
GO:0010941	regulation of cell death	1.01E-06	BDNF,CCL2,CCL5,HP,ICAM1,SERPINE1,TGFB1,TIMP1,VEGFA
GO:0071222	cellular response to lipopolysaccharide	1.11E-06	CCL2,CCL5,ICAM1,SERPINE1,TGFB1
GO:0032879	regulation of localization	1.17E-06	BDNF,CCL2,CCL5,CRP,ICAM1,SERPINE1,SPARC,TGFB1,TIMP1,VEGFA
GO:0070887	cellular response to chemical stimulus	1.85E-06	BDNF,CCL2,CCL5,HP,ICAM1,SERPINE1,SPARC,TGFB1,TIMP1,VEGFA
GO:0050731	positive regulation of peptidyl-tyrosine phosphorylation	2.41E-06	BDNF,CCL5,ICAM1,TGFB1,VEGFA
GO:0006952	defense response	2.61E-06	CCL2,CCL5,CRP,HP,ICAM1,SERPINE1,TGFB1,TIMP1
GO:0050920	regulation of chemotaxis	2.74E-06	CCL2,CCL5,SERPINE1,TGFB1,VEGFA
GO:0006887	exocytosis	3.04E-06	CCL5,HP,SERPINE1,SPARC,TGFB1,TIMP1,VEGFA
GO:0070374	positive regulation of ERK1 and ERK2 cascade	3.10E-06	CCL2,CCL5,ICAM1,TGFB1,VEGFA
GO:0030335	positive regulation of cell migration	4.17E-06	CCL5,ICAM1,SERPINE1,SPARC,TGFB1,VEGFA
GO:0048523	negative regulation of cellular process	5.04E-06	BDNF,CCL2,CCL5,CRP,HP,ICAM1,SERPINE1,SPARC,TGFB1,TIMP1,VEGFA

Table S9: Top 20 GO terms-Biological Processes in *Cluster 4*

Term ID	term description	false discovery rate	matching proteins in your network
GO:0006952	defense response	9.12E-15	B2M,C3,CRP,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IL12RB1,IL2RA,IL6,SAA1,SERPINA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0006954	inflammatory response	9.12E-15	C3,CRP,CXCL10,CXCL11,HP,ICAM1,IL2RA,IL6,SAA1,SERPINA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0019221	cytokine-mediated signaling pathway	2.41E-13	B2M,CXCL10,CXCL11,ICAM1,IFNA1,IL12RB1,IL2RA,IL6,MMP3,SAA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0034097	response to cytokine	2.41E-13	ADIPOQ,B2M,CXCL10,CXCL11,FGB,ICAM1,IFNA1,IL12RB1,IL2RA,IL6,MMP3,SAA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0002376	immune system process	5.89E-13	ANGPT2,B2M,C3,CRP,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IL12RB1,IL2RA,IL6,IST1,KITLG,SAA1,SERPINA1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0009617	response to bacterium	5.89E-13	ADIPOQ,B2M,C3,CRP,CXCL10,CXCL11,FGB,HP,ICAM1,IL6,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0071345	cellular response to cytokine stimulus	8.77E-13	B2M,CXCL10,CXCL11,FGB,ICAM1,IFNA1,IL12RB1,IL2RA,IL6,MMP3,SAA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0009605	response to external stimulus	2.78E-12	ADIPOQ,ANGPT2,B2M,C3,CRP,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IGFBP2,IL6,OPHN1,SAA1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0006955	immune response	2.79E-12	B2M,C3,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IL12RB1,IL2RA,IL6,IST1,SAA1,SERPINA1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0051707	response to other organism	2.79E-12	ADIPOQ,B2M,C3,CRP,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IL6,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0006950	response to stress	7.81E-12	ADIPOQ,ANGPT2,B2M,C3,CRP,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IL12RB1,IL2RA,IL6,MMP3,SAA1,SERPINA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0071310	cellular response to organic substance	4.02E-11	ADIPOQ,ANGPT2,B2M,CXCL10,CXCL11,FGB,ICAM1,IFNA1,IGFBP2,IL12RB1,IL2RA,IL6,MMP3,SAA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0070887	cellular response to chemical stimulus	5.84E-11	ADIPOQ,ANGPT2,B2M,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IGFBP2,IL12RB1,IL2RA,IL6,MMP3,SAA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0048583	regulation of response to stimulus	2.41E-10	ADIPOQ,ANGPT2,B2M,C3,CXCL10,CXCL11,FGB,ICAM1,IFNA1,IGFBP2,IL12RB1,IL2RA,IL6,KITLG,MMP3,OPHN1,SAA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0001775	cell activation	6.29E-10	B2M,C3,CXCL10,FGB,HP,ICAM1,IFNA1,IL6,IST1,SAA1,SERPINA1,TIMP1,TNFRSF1B,VCAM1

Term ID	term description	false discovery rate	matching proteins in your network
GO:0051704	multi-organism process	6.29E-10	ADIPOQ,ANGPT2,B2M,C3,CRP,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IGFBP2,IL6,IST1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0002526	acute inflammatory response	7.63E-10	CRP,HP,ICAM1,IL6,SAA1,SERPINA1,VCAM1
GO:1901700	response to oxygen-containing compound	2.58E-09	ADIPOQ,ANGPT2,B2M,CXCL10,CXCL11,HP,ICAM1,IGFBP2,IL6,MMP3,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0050896	response to stimulus	3.38E-09	ADIPOQ,ANGPT2,B2M,C3,CRP,CXCL10,CXCL11,FGB,HP,ICAM1,IFNA1,IGFBP2,IL12RB1,IL2RA,IL6,IST1,KITLG,MMP3,OPHN1,SAA1,SERPINA1,TIMP1,TNFRSF11B,TNFRSF1A,TNFRSF1B,VCAM1
GO:0032101	regulation of response to external stimulus	3.44E-09	ADIPOQ,ANGPT2,C3,CXCL10,CXCL11,FGB,IL12RB1,IL2RA,IL6,SAA1,TNFRSF1A,TNFRSF1B