SUPPLEMENTARY MATERIAL

SUPPLEMENTARY TABLE 1 Study subject characteristics

	GPA n=32	**Comparators n=35**	**P Value**
Mean age (sd)	52 (15.2)	51 (13.3)	0.89
Never smoker (%)	18 (56)	25 (71)	0.20
Pack Years Among Smokers	35.5 (30.9)	26.3 (10.2)	0.22
Female Sex (%)	17 (44)	16 (46)	0.63
Caucasian Race (%)	31 (97)	31 (89)	0.36
Non-Hispanic (%)	31 (97)	34 (97)	1.00
No. taking oral prednisone (%)	16 (50)	8 (23)	0.02
Mean prednisone dose, mg (sd)	18 (18.1)	13 (5.9)	0.32
No. taking other immunosuppresants (%)	19 (59)	7 (20)	<0.01
Azathioprine	4 (13)	0 (0)	
Cyclophosphamide	1 (3)	1 (3)	
Infliximab	0 (0)	1 (3)	
Methotrexate	8 (28)	4 (11)	
Mycophenolate mofetil	2 (6)	0 (0)	
Rituximab	4 (14)	1 (3)	
No. using nasal glucocorticoids (%)	3 (10)	7 (20)	0.31
No. taking trimethoprim – sulfamethoxazole	5 (16)	4 (11)	0.73

SUPPLEMENTARY TABLE 2: Differential expression of 393 probesets between GPA and Composite Controls

Gene Symbol	Gene	RefSeq	Fold Change	P-value	Description
TREM1	Triggering receptor expressed on myeloid cells 1	AF287008	3.06552	0.00048474	GPA up vs Control
AQP9	Aquaporin 9	AF016495	3.01925	0.00121312	GPA up vs Control
CXCR1	Chemokine (C-X-C motif) receptor 1	L19591	3.01883	0.00111175	GPA up vs Control
IL1B	Interleukin 1, beta	BC008678	2.96958	0.00142907	GPA up vs Control
IL1R2	Interleukin 1 receptor, type II	BC039031	2.89644	0.00024234	GPA up vs Control
	---	---	2.85894	0.00112395	GPA up vs Control
HBB	Hemoglobin, beta	AF117710	2.76585	0.00939599	GPA up vs Control
FCGR2A	Fc fragment of IgG, low affinity IIa, receptor (CD32)	BC020823	2.74263	0.00053416	GPA up vs Control
CXCR2	Chemokine (C-X-C motif) receptor 2	L19593	2.70292	0.00058137	GPA up vs Control
FPR2	Formyl peptide receptor 2	BC071722	2.57247	0.00251085	GPA up vs Control
CSF3R	Colony stimulating factor 3 receptor (granulocyte)	BC053585	2.55924	0.00087965	GPA up vs Control
KIAA0226L	KIAA0226-like	AK093073	2.46839	0.0005981	GPA up vs Control
SLC11A1	Solute carrier family 11	AK303398	2.46742	0.00019036	GPA up vs Control
	---	---	2.44756	0.00250453	GPA up vs Control
OSM	Oncostatin M	BC011589	2.41978	0.00094466	GPA up vs Control
FPR1	Formyl peptide receptor 1	BC005315	2.40944	0.0015801	GPA up vs Control
GLT1D1	Glycosyltransferase 1 domain containing 1	BC043528	2.39423	0.00082949	GPA up vs Control
RGS2	Regulator of G-protein signaling 2	BC042755	2.3878	0.00111032	GPA up vs Control
PLEK	Pleckstrin	BC018549	2.37436	0.00334781	GPA up vs Control
HCAR3	Hydroxycarboxylic acid receptor 3	BC047891	2.34051	0.00137764	GPA up vs Control
THBS1	Thrombospondin 1	AK291639	2.32522	0.0000149	GPA up vs Control
IL18RAP	Interleukin 18 receptor accessory protein	AF077346	2.32289	0.00323212	GPA up vs Control
HBA1	Hemoglobin, alpha 1	AF097635	2.32283	0.00623074	GPA up vs Control
HBA1	Hemoglobin, alpha 1	AF097635	2.32283	0.00623074	GPA up vs Control
MIR223	microRNA 223	NR_029637	2.32129	0.00088761	GPA up vs Control
EMR3	Egf-like module containing hormone receptor-like 3	AF239764	2.29987	0.00073522	GPA up vs Control

SLC2A3	Solute carrier family 2	AB209607	2.28767	0.0021073	GPA up vs Control
SPP1	Secreted phosphoprotein 1	AF052124	2.28442	0.0000504	GPA up vs Control
MME	Membrane metallo-endopeptidase	J03779	2.27572	0.00086981	GPA up vs Control
	---	---	2.27116	0.00089378	GPA up vs Control
LIPN	Lipase, family member N	EF426483	2.26361	0.00184658	GPA up vs Control
SRGN	Serglycin	BC015516	2.26311	0.00186479	GPA up vs Control
FCGR3A	Fc fragment of IgG, low affinity IIIa, receptor (CD16a)	BC036723	2.25998	0.00268551	GPA up vs Control
G0S2	G0/G1switch 2	BC009694	2.24181	0.00063228	GPA up vs Control
S100A12	S100 calcium binding protein A12	D83664	2.23561	0.00174056	GPA up vs Control
FOS	FBJ murine osteosarcoma viral oncogene homolog	BC004490	2.22317	0.00129198	GPA up vs Control
KLK6	Kallikrein-related peptidase 6	U62801	2.20649	0.0014433	GPA up vs Control
CLEC4E	C-type lectin domain family 4, member E	AB024718	2.20571	0.00371247	GPA up vs Control
SPRR1B	Small proline-rich protein 1B	BC056240	2.20485	0.0000355	GPA up vs Control
FAM65B	Family with sequence similarity 65, member B	AK299047	2.20261	0.00091136	GPA up vs Control
MMP9	Matrix metallopeptidase 9	BC006093	2.1954	0.00019891	GPA up vs Control
MNDA	Myeloid cell nuclear differentiation antigen	M81750	2.18614	0.00221174	GPA up vs Control
BCL2A1	BCL2-related protein A1	ENST00000	2.18187	0.00140824	GPA up vs Control
SPRR2E	Small proline-rich protein 2E	ENST00000	2.15457	0.00666222	GPA up vs Control
PTGS2	Prostaglandin-endoperoxide synthase 2	AY151286	2.14945	0.00128781	GPA up vs Control
ITGAX	Integrin, alpha X	M81695	2.13925	0.00097788	GPA up vs Control
GPR97	G protein-coupled receptor 97	BC064508	2.13847	0.00183756	GPA up vs Control
FN1	Fibronectin 1	BX640731	2.131	0.00365524	GPA up vs Control
CR1	Complement component (3b/4b) receptor 1	ENST00000	2.12721	0.00165205	GPA up vs Control
	---	---	2.11604	0.00012755	GPA up vs Control
PROK2	Prokineticin 2	AF333025	2.11138	0.00112293	GPA up vs Control
CNFN	Cornifelin	BC101197	2.10261	0.00369525	GPA up vs Control
CRCT1	Cysteine-rich C-terminal 1	ENST00000	2.09534	0.00620858	GPA up vs Control
CYTIP	Cytohesin 1 interacting protein	BC036449	2.08535	0.00153054	GPA up vs Control
TMPRSS11E	Transmembrane protease, serine 11E	AY359017	2.07141	0.00081886	GPA up vs Control
SLA	Src-like-adaptor	D89077	2.06939	0.00138836	GPA up vs Control

	---	---	2.05919	0.00310844	GPA up vs Control
TMPRSS11E	Transmembrane protease, serine 11E	AY359017	2.05663	0.00085387	GPA up vs Control
MAL	Mal, T-cell differentiation protein	BC003006	2.05479	0.00053901	GPA up vs Control
	---	---	2.05239	0.00175075	GPA up vs Control
EMR2	Egf-like module containing hormone receptor-like 2	AK291776	2.05204	0.00171438	GPA up vs Control
	---	---	2.03238	0.00367012	GPA up vs Control
IL8	Interleukin 8	M17017	2.0156	0.00084768	GPA up vs Control
	---	---	2.01429	0.00264935	GPA up vs Control
SAMSN1	SAM domain, SH3 domain & nuclear localization signals 1	AF218085	2.01328	0.00274896	GPA up vs Control
RASSF2	Ras association (RalGDS/AF-6) domain family member 2	AY154470	2.01188	0.00066105	GPA up vs Control
PFKFB3	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 3	AF056320	2.01082	0.00033349	GPA up vs Control
MYO1F	Myosin IF	AB290178	1.99256	0.00118265	GPA up vs Control
KRT6B	Keratin 6B	BC034535	1.98834	0.00047495	GPA up vs Control
	---	---	1.98345	0.00229994	GPA up vs Control
PLAUR	Plasminogen activator, urokinase receptor	BC002788	1.97838	0.00052354	GPA up vs Control
SELL	Selectin L	M25280	1.97692	0.00209312	GPA up vs Control
HCAR2	Hydroxycarboxylic acid receptor 2	BC027965	1.97604	0.0017266	GPA up vs Control
MIR24-2	MicroRNA 24-2	AF480559	1.97329	0.00078486	GPA up vs Control
KRT6A	Keratin 6A	BC008807	1.96548	0.00124853	GPA up vs Control
TMPRSS11B	Transmembrane protease, serine 11B	BX537945	1.96379	0.00639297	GPA up vs Control
KRT14	Keratin 14	BC094830	1.96353	0.0001649	GPA up vs Control
OLR1	Oxidized low density lipoprotein (lectin-like) receptor 1	AB010710	1.96011	0.00012475	GPA up vs Control
CSF2RB	Colony stimulating factor 2 receptor, beta	BC070085	1.95743	0.00304181	GPA up vs Control
GMFG	Glia maturation factor, gamma	BC093799	1.95562	0.00159091	GPA up vs Control
CD53	CD53 molecule	BC040693	1.95227	0.00165007	GPA up vs Control
UCA1	Urothelial cancer associated 1	DQ249310	1.94506	0.00189443	GPA up vs Control
TNFAIP6	Tumor necrosis factor, alpha-induced protein 6	BC030205	1.94485	0.00542385	GPA up vs Control
DYSF	Dysferlin, limb girdle muscular dystrophy 2B	ENST00000	1.94044	0.0024163	GPA up vs Control
CYTH4	Cytohesin 4	AF075458	1.93875	0.00257567	GPA up vs Control
EVI2B	Ecotropic viral integration site 2B	BC005926	1.93091	0.00115885	GPA up vs Control

CD14	CD14 molecule	BC010507	1.92962	0.00013878	GPA up vs Control
SERPINA1	Serpin peptidase inhibitor, clade A	BC011991	1.92944	0.00015486	GPA up vs Control
SPRR2A	Small proline-rich protein 2A	ENST00000	1.92929	0.00346716	GPA up vs Control
LCP2	Lymphocyte cytosolic protein 2	AK292890	1.92244	0.00397874	GPA up vs Control
LILRB3	Leukocyte immunoglobulin-like receptor, subfamily B	ENST00000	1.9178	0.00097895	GPA up vs Control
LILRA2	Leukocyte immunoglobulin-like receptor, subfamily A	AF025531	1.90419	0.00033192	GPA up vs Control
PTPRC	Protein tyrosine phosphatase, receptor type, C	AK292131	1.90226	0.00675586	GPA up vs Control
	---	---	1.89184	0.00710071	GPA up vs Control
	---	---	1.88846	0.00402724	GPA up vs Control
TLR4	Toll-like receptor 4	AK290053	1.88677	0.00252052	GPA up vs Control
	---	---	1.88643	0.00157351	GPA up vs Control
SOCS3	Suppressor of cytokine signaling 3	BC060858	1.88435	0.00274495	GPA up vs Control
	---	---	1.87967	0.00088472	GPA up vs Control
NCF4	Neutrophil cytosolic factor 4	BC002798	1.87904	0.00092365	GPA up vs Control
S100A8	S100 calcium binding protein A8	BC005928	1.87782	0.00047079	GPA up vs Control
FCAR	Fc fragment of IgA, receptor for	ENST00000	1.87551	0.00107063	GPA up vs Control
HSPB8	Heat shock 22kDa protein 8	AF191017	1.86963	0.00067867	GPA up vs Control
S100A9	S100 calcium binding protein A9	M26311	1.86687	0.00071477	GPA up vs Control
TNFRSF10C	Tumor necrosis factor receptor superfamily, member 10c	ENST00000	1.86225	0.00056857	GPA up vs Control
SLC34A2	Solute carrier family 34 (sodium phosphate), member 2	AF111856	1.85855	0.00066228	GPA up vs Control
LAPTM5	Lysosomal protein transmembrane 5	U51240	1.85281	0.00050072	GPA up vs Control
LCP1	Lymphocyte cytosolic protein 1 (L-plastin)	BC007673	1.85125	0.0048354	GPA up vs Control
HCK	Hemopoietic cell kinase	AK290928	1.84852	0.00269689	GPA up vs Control
CXCR4	Chemokine (C-X-C motif) receptor 4	AF147204	1.84451	0.00069498	GPA up vs Control
PLXNC1	Plexin C1	AF030339	1.84201	0.00190593	GPA up vs Control
TNFRSF1B	Tumor necrosis factor receptor superfamily, member 1B	BC052977	1.83856	0.00171559	GPA up vs Control
	---	---	1.83086	0.00268534	GPA up vs Control
CASS4	Cas scaffolding protein family member 4	BC027951	1.82521	0.00101291	GPA up vs Control
MXD1	MAX dimerization protein 1	BC098396	1.82458	0.00027245	GPA up vs Control
KRT13	Keratin 13	AK223077	1.82421	0.0002193	GPA up vs Control

CHI3L1	Chitinase 3-like 1 (cartilage glycoprotein-39)	BC008568	1.82188	0.00147555	GPA up vs Control
THBD	Thrombomodulin	BC035602	1.81949	0.0000838	GPA up vs Control
FOSB	FBJ murine osteosarcoma viral oncogene homolog B	BC036724	1.81469	0.00021103	GPA up vs Control
ALOX5	Arachidonate 5-lipoxygenase	J03571	1.81412	0.0000893	GPA up vs Control
ALOX5AP	Arachidonate 5-lipoxygenase-activating protein	BC018538	1.80988	0.0017092	GPA up vs Control
LOC100131131	LOC100131131	AY358263	1.80586	0.00243492	GPA up vs Control
GAGE10	G antigen 10	ENST00000	1.79801	0.00386896	GPA up vs Control
SPARC	Secreted protein, acidic, cysteine-rich (osteonectin)	BC072457	1.79716	0.00017559	GPA up vs Control
MPP1	Membrane protein, palmitoylated 1	M64925	1.79504	0.00014825	GPA up vs Control
DSC2	Desmocollin 2	BC063291	1.79403	0.0000287	GPA up vs Control
NCF2	Neutrophil cytosolic factor 2	BC001606	1.79395	0.00070807	GPA up vs Control
LOC401317	Uncharacterized LOC401317	ENST00000	1.79256	0.0010677	GPA up vs Control
CD93	CD93 molecule	U94333	1.79131	0.0004962	GPA up vs Control
SPRR2D	Small proline-rich protein 2D	M21302	1.79034	0.00331273	GPA up vs Control
	---	---	1.78666	0.00632296	GPA up vs Control
	---	---	1.78563	0.00283279	GPA up vs Control
APOBEC3A	Apolipoprotein B mRNA editing enzyme	U03891	1.78532	0.00253913	GPA up vs Control
ITGB2	Integrin, beta 2	AB208909	1.78504	0.00088092	GPA up vs Control
HSPA6	Heat shock 70kDa protein 6 (HSP70B')	BC035665	1.78284	0.00134575	GPA up vs Control
GPR65	G protein-coupled receptor 65	BC035633	1.77193	0.00313079	GPA up vs Control
PRKCB	Protein kinase C, beta	BC036472	1.76794	0.00163975	GPA up vs Control
PLK3	Polo-like kinase 3	AJ293866	1.76788	0.00025162	GPA up vs Control
C1orf38	Chromosome 1 open reading frame 38	AK303090	1.76093	0.001556	GPA up vs Control
PREX1	Phosphatidylinositol-3,4,5-trisphosphate-depend Rac	ENST00000	1.75971	0.00290629	GPA up vs Control
FCGR2B	Fc fragment of IgG, low affinity IIb, receptor (CD32)	BC146678	1.75906	0.00058849	GPA up vs Control
SPRR2B	Small proline-rich protein 2B	ENST00000	1.75732	0.00901984	GPA up vs Control
FGR	Gardner-Rasheed feline sarcoma viral oncogene homolog	AK301078	1.75508	0.00158326	GPA up vs Control
JUNB	Jun B proto-oncogene	BC004250	1.75354	0.00042969	GPA up vs Control
FCER1G	Fc fragment of IgE, high affinity I, Rc; gamma polypeptid	M33195	1.75353	0.00463284	GPA up vs Control
SPRR1A	Small proline-rich protein 1A	BC105081	1.75129	0.00071351	GPA up vs Control

EMP1	Epithelial membrane protein 1	AK299388	1.7493	0.00128758	GPA up vs Control
KLK7	Kallikrein-related peptidase 7	AF411214	1.74752	0.00179571	GPA up vs Control
APBB1IP	Amyloid beta precursor protein-binding fam B member 1	AK303597	1.74638	0.00376421	GPA up vs Control
IL1RN	Interleukin 1 receptor antagonist	BC068441	1.74434	0.00043221	GPA up vs Control
SKAP2	Src kinase associated phosphoprotein 2	AB014486	1.74347	0.00242838	GPA up vs Control
TYROBP	TYRO protein tyrosine kinase binding protein	BC011175	1.74263	0.00023623	GPA up vs Control
SULT1B1	Sulfotransferase family, cytosolic, 1B, member 1	BC010895	1.74114	0.001034	GPA up vs Control
SLED1	Proteoglycan 3 pseudogene	AY358224	1.7411	0.00281942	GPA up vs Control
RAC2	Ras-related C3 botulinum toxin substrate 2	BC001485	1.73912	0.00114643	GPA up vs Control
ECM1	Extracellular matrix protein 1	BC023505	1.73519	0.00121299	GPA up vs Control
NABP1	Nucleic acid binding protein 1	BC017114	1.73363	0.00228795	GPA up vs Control
ITGAM	Integrin, alpha M	J03925	1.73145	0.00088861	GPA up vs Control
	---	---	1.7289	0.00127335	GPA up vs Control
DSG3	Desmoglein 3	M76482	1.72852	0.00058758	GPA up vs Control
RHCG	Rh family, C glycoprotein	AF081497	1.72734	0.00327557	GPA up vs Control
FYB	FYN binding protein	AF001862	1.72482	0.00796855	GPA up vs Control
PTPRE	Protein tyrosine phosphatase, receptor type, E	AJ430580	1.72278	0.00018425	GPA up vs Control
C5AR1	Complement component 5a receptor 1	BC008982	1.72183	0.00162364	GPA up vs Control
KRT17	Keratin 17	BC000159	1.71507	0.00147825	GPA up vs Control
ITGA5	Integrin, alpha 5 (fibronectin receptor, alpha polypeptide)	AK291570	1.71158	0.00030208	GPA up vs Control
NLRP12	NLR family, pyrin domain containing 12	AY095146	1.70701	0.0003834	GPA up vs Control
	---	---	1.70634	0.00229782	GPA up vs Control
	---	---	1.70554	0.00101483	GPA up vs Control
ADM	Adrenomedullin	BC015961	1.70409	0.00172017	GPA up vs Control
	---	---	1.70389	0.0066684	GPA up vs Control
NFIL3	Nuclear factor, interleukin 3 regulated	U26173	1.70385	0.00151996	GPA up vs Control
DGAT2	Diacylglycerol O-acyltransferase 2	BC015234	1.69223	0.00025813	GPA up vs Control
ZFP36	Zinc finger protein 36, C3H type, homologe	M92843	1.68991	0.00084055	GPA up vs Control
PILRA	Paired immunoglobin-like type 2 receptor alpha	AF161080	1.6873	0.00046192	GPA up vs Control
	---	---	1.68259	0.00259528	GPA up vs Control

BIN2	Bridging integrator 2	BC047686	1.68133	0.00106459	GPA up vs Control
EREG	Epiregulin	D30783	1.6801	0.00072863	GPA up vs Control
IL36A	Interleukin 36, alpha	AF201831	1.6795	0.00497803	GPA up vs Control
BTG2	BTG family, member 2	U72649	1.67721	0.00294261	GPA up vs Control
HRH2	Histamine receptor H2	BC054510	1.67632	0.00265973	GPA up vs Control
	---	---	1.67459	0.00559805	GPA up vs Control
CDA	Cytidine deaminase	BC048284	1.67404	0.00041941	GPA up vs Control
TMCC3	Transmembrane and coiled-coil domain family 3	BC040535	1.67333	0.0000657	GPA up vs Control
C7orf53	Chromosome 7 open reading frame 53	BC031976	1.67266	0.00148086	GPA up vs Control
TLR8	Toll-like receptor 8	AF246971	1.67256	0.00583885	GPA up vs Control
MEFV	Mediterranean fever	AF018080	1.67221	0.00728823	GPA up vs Control
TLR2	Toll-like receptor 2	BC033756	1.66996	0.00228254	GPA up vs Control
CCL4	Chemokine (C-C motif) ligand 4	AY766446	1.66461	0.00336737	GPA up vs Control
CCL4	Chemokine (C-C motif) ligand 4	AY766446	1.66461	0.00336737	GPA up vs Control
	---	---	1.66247	0.00230352	GPA up vs Control
	---	---	1.65988	0.00012726	GPA up vs Control
SPRR3		AY118269	1.6597	0.00054454	GPA up vs Control
LYPD3	LY6/PLAUR domain containing 3	AF082889	1.65734	0.00025461	GPA up vs Control
EGR1	Early growth response 1	M62829	1.65553	0.0057411	GPA up vs Control
AREG	Amphiregulin	BC009799	1.65483	0.00075482	GPA up vs Control
SLC25A37	Solute carrier family 25	AK127666	1.65387	0.00055069	GPA up vs Control
RASGRP4	RAS guanyl releasing protein 4	AY048120	1.65283	0.0035318	GPA up vs Control
CSRNP1	Cysteine-serine-rich nuclear protein 1	BC038949	1.65162	0.00154301	GPA up vs Control
DOCK11	Dedicator of cytokinesis 11	AY692226	1.65123	0.0026114	GPA up vs Control
LILRA1	Leukocyte immunoglobulin-like receptor, subfamily A	AF025529	1.65079	0.00323277	GPA up vs Control
SIGLEC9	Sialic acid binding Ig-like lectin 9	BC035365	1.64965	0.0001121	GPA up vs Control
	---	---	1.64963	0.00304275	GPA up vs Control
KRT17P1	Keratin 17 pseudogene 1	ENST00000	1.64726	0.00176481	GPA up vs Control
ICAM3	Intercellular adhesion molecule 3	BC046121	1.64344	0.00426125	GPA up vs Control
SPI1	Spleen focus forming virus proviral integration oncog	ENST00000	1.64304	0.00195753	GPA up vs Control

NLRP3	NLR family, pyrin domain containing 3	AF410477	1.64011	0.00135066	GPA up vs Control
CHST11	Carbohydrate (chondroitin 4) sulfotransferase 11	AB042326	1.63892	0.00016909	GPA up vs Control
EGR3	Early growth response 3	AK292464	1.63716	0.00584418	GPA up vs Control
SLC25A37	Solute carrier family 25	AF495725	1.63296	0.00085102	GPA up vs Control
CRNN	Cornulin	BC030807	1.63195	0.0103852	GPA up vs Control
KRT16	Keratin 16	BC039169	1.63081	0.00049277	GPA up vs Control
PDE4B	Phosphodiesterase 4B, cAMP-specific	AK289969	1.62901	0.00549928	GPA up vs Control
	---	---	1.6272	0.0010111	GPA up vs Control
IGSF6	Immunoglobulin superfamily, member 6	BC017844	1.62048	0.00371142	GPA up vs Control
PLAT	Plasminogen activator, tissue	BC095403	1.62045	0.00480707	GPA up vs Control
TIMP2	TIMP metallopeptidase inhibitor 2	BC040445	1.61716	6.95E-07	GPA up vs Control
TGFBI	Transforming growth factor, beta-induced	AK094581	1.6169	0.0000352	GPA up vs Control
LILRA5	Leukocyte immunoglobulin-like receptor, subfamily A	AF324830	1.61645	0.0102124	GPA up vs Control
SLC2A14	Solute carrier family 2	AF481878	1.61619	0.00091603	GPA up vs Control
TBXAS1	Thromboxane A synthase 1 (platelet)	BC014117	1.61344	0.00150442	GPA up vs Control
CD300A	CD300a molecule	BC032352	1.61111	0.00266351	GPA up vs Control
CORO1A	Coronin, actin binding protein, 1A	BC110374	1.60928	0.00330026	GPA up vs Control
QPCT	Glutaminyl-peptide cyclotransferase	BC047756	1.6085	0.00116851	GPA up vs Control
ACSL1	Acyl-CoA synthetase long-chain family member 1	AK292798	1.60795	0.00148363	GPA up vs Control
SELPLG	Selectin P ligand	BC029782	1.60751	0.0027976	GPA up vs Control
BEST1	Bestrophin 1	AF057170	1.60677	0.00354645	GPA up vs Control
CLEC7A	C-type lectin domain family 7, member A	AY359002	1.60646	0.0016778	GPA up vs Control
CXCL13	Chemokine (C-X-C motif) ligand 13	AF044197	1.60604	0.00256101	GPA up vs Control
CLEC4D	C-type lectin domain family 4, member D	AY115592	1.6059	0.00432279	GPA up vs Control
PIK3R5	Phosphoinositide-3-kinase, regulatory subunit 5	BC028212	1.60484	0.00086596	GPA up vs Control
RGS18	Regulator of G-protein signaling 18	AF268036	1.60328	0.00427967	GPA up vs Control
KRT6A	Keratin 6A	BC008807	1.60251	0.00096498	GPA up vs Control
ABCA1	ATP-binding cassette, sub-family A (ABC1), member 1	AF285167	1.60149	0.00039237	GPA up vs Control
A2ML1	Alpha-2-macroglobulin-like 1	AK122624	1.60101	0.001208	GPA up vs Control
PLAU	Plasminogen activator, urokinase	D00244	1.6006	0.00217778	GPA up vs Control

LOC728093	Putative POM121-like protein 1-like	AK296222	1.59767	0.00394026	GPA up vs Control
LST1	Leukocyte specific transcript 1	ENST00000	1.59701	0.00115077	GPA up vs Control
LST1	Leukocyte specific transcript 1	ENST00000	1.59701	0.00115077	GPA up vs Control
LST1	Leukocyte specific transcript 1	ENST00000	1.59701	0.00115077	GPA up vs Control
IFITM2	Interferon induced transmembrane protein 2	BC009696	1.59591	0.00083249	GPA up vs Control
LOC728093	Putative POM121-like protein 1-like	AK296222	1.59196	0.0041585	GPA up vs Control
NR4A3	Nuclear receptor subfamily 4, group A, member 3	D78579	1.59165	0.00138465	GPA up vs Control
DOCK2	Dedicator of cytokinesis 2	BC104900	1.58959	0.00367417	GPA up vs Control
HAL	Histidine ammonia-lyase	AK298736	1.58877	0.00357422	GPA up vs Control
WIPF1	WAS/WASL interacting protein family, member 1	AK301271	1.58862	0.00612449	GPA up vs Control
GPR77	G protein-coupled receptor 77	AB038237	1.58703	0.00259791	GPA up vs Control
MMP25	Matrix metallopeptidase 25	AB042328	1.58477	0.00369054	GPA up vs Control
LOC400499	Uncharacterized LOC400499	AK126539	1.58382	0.00163477	GPA up vs Control
MIR142	MicroRNA 142	NR_029683	1.58323	0.00971188	GPA up vs Control
LUM	Lumican	BC007038	1.58081	0.0006828	GPA up vs Control
FMNL1	Formin-like 1	AY278319	1.57955	0.00256687	GPA up vs Control
KRT17	Keratin 17	BC011901	1.57805	0.00058249	GPA up vs Control
OR2J3	Olfactory receptor, family 2, subfamily J, member 3	BC136973	1.57797	0.00205518	GPA up vs Control
PHOSPHO1	Phosphatase, orphan 1	ENST00000	1.57512	0.00405961	GPA up vs Control
MIR27A	MicroRNA 27a	AF480561	1.57443	0.00014936	GPA up vs Control
DUSP1	Dual specificity phosphatase 1	BC022463	1.57128	0.00166594	GPA up vs Control
C19orf59	Chromosome 19 open reading frame 59	AF461155	1.56539	0.00100284	GPA up vs Control
CD37	CD37 molecule	AK058093	1.56474	0.00426853	GPA up vs Control
ADAM8	ADAM metallopeptidase domain 8	AK301147	1.5643	0.00206758	GPA up vs Control
NCCRP1	Non-specific cytotoxic cell receptor protein 1	BC092493	1.56266	0.00051413	GPA up vs Control
IGKV1OR2-118	Immunoglobulin kappa variable 1/OR2-118	ENST00000	1.562	0.00044262	GPA up vs Control
	---	---	1.56184	0.0028425	GPA up vs Control
SIGLEC5	Sialic acid binding Ig-like lectin 5	U71383	1.56159	0.00133935	GPA up vs Control
C1orf138	Chromosome 1 open reading frame 138	AK127688	1.56021	0.00135805	GPA up vs Control
FERMT3	Fermitin family member 3	BC004347	1.55956	0.00210236	GPA up vs Control

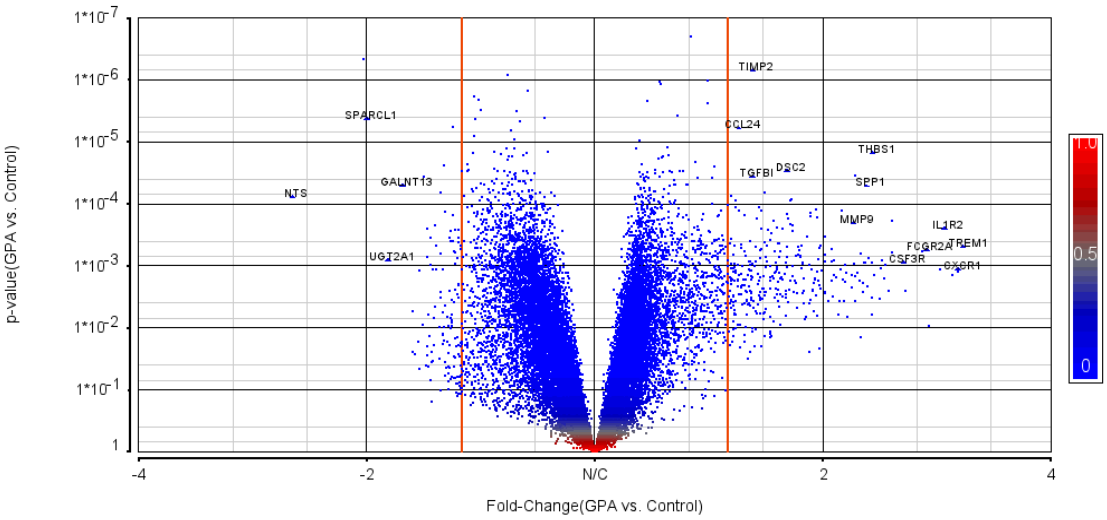
HSPA6	Heat shock 70kDa protein 6 (HSP70B')	BC035665	1.55858	0.00223921	GPA up vs Control
PPIF	Peptidylprolyl isomerase F	BC005020	1.55833	0.00045111	GPA up vs Control
SOD2	Superoxide dismutase 2, mitochondrial	BC012423	1.55446	0.00900189	GPA up vs Control
ZDHHC18	Zinc finger, DHHC-type containing 18	BC066776	1.55141	0.00012637	GPA up vs Control
ZEB2	Zinc finger E-box binding homeobox 2	AB056507	1.55032	0.00283026	GPA up vs Control
CCL24	Chemokine (C-C motif) ligand 24	BC069072	1.55006	0.00000593	GPA up vs Control
NAMPT	Nicotinamide phosphoribosyltransferase	AK292851	1.54749	0.00143019	GPA up vs Control
SSH2	Slingshot homolog 2	AB099290	1.54723	0.00212647	GPA up vs Control
MIR23A	MicroRNA 23a	AF480558	1.54722	0.00097026	GPA up vs Control
KLK10	Kallikrein-related peptidase 10	BC002710	1.54384	0.00171691	GPA up vs Control
ROCK1P1	Rho-associated, coiled-coil containing protein kinase 1	BC041849	1.54362	0.00168759	GPA up vs Control
IL36G	Interleukin 36, gamma	AF206696	1.54257	0.00878002	GPA up vs Control
ADAM19	ADAM metallopeptidase domain 19	AF134707	1.53538	0.00120329	GPA up vs Control
CHST15	Carbohydrate sulfotransferase	AK294961	1.53526	0.0000885	GPA up vs Control
CCL18	Chemokine (C-C motif) ligand 18	AB000221	1.53496	0.00011087	GPA up vs Control
C3AR1	Complement component 3a receptor 1	U62027	1.53468	0.009914	GPA up vs Control
TREML2	Triggering receptor expressed on myeloid cells-like 2	BC125078	1.53294	0.00609154	GPA up vs Control
PLA2G7	Phospholipase A2, group VII	BC038452	1.53224	0.0037343	GPA up vs Control
OR4G2P	Olfactory receptor, family 4, subfamily G, member 2	ENST00000	1.53191	0.00130594	GPA up vs Control
LILRB2	Leukocyte immunoglobulin-like receptor, subfamily B	AF004231	1.53163	0.00592015	GPA up vs Control
SLC7A5	Solute carrier family 7	AF104032	1.5316	0.00092311	GPA up vs Control
HBEGF	Heparin-binding EGF-like growth factor	BC033097	1.5312	0.00615693	GPA up vs Control
AREG	Amphiregulin	BC009799	1.53112	0.00105564	GPA up vs Control
PRSS27	Protease, serine 27	BC034294	1.53031	0.00169771	GPA up vs Control
	---	---	1.52885	0.00527629	GPA up vs Control
IGKV1OR2-118	Immunoglobulin kappa variable 1/OR2-118	ENST00000	1.52834	0.00047804	GPA up vs Control
CD109	CD109 molecule	ENST00000	1.5264	0.00067155	GPA up vs Control
SLCO4A1	Solute carrier organic anion transporter family, memb 4A1	AF104334	1.52564	0.00299425	GPA up vs Control
DEFA3	Defensin, alpha 3, neutrophil-specific	BC119706	1.52479	0.00774627	GPA up vs Control
DEFA3	Defensin, alpha 3, neutrophil-specific	BC119706	1.52479	0.00774627	GPA up vs Control

DEFA3	Defensin, alpha 3, neutrophil-specific	BC119706	1.52479	0.00774627	GPA up vs Control
FAM49A	Family with sequence similarity 49, member A	AL136704	1.52472	0.00305943	GPA up vs Control
SCEL	Sciellin	AK301659	1.52458	0.00380027	GPA up vs Control
LRMP	Lymphoid-restricted membrane protein	BC126417	1.52423	0.00109945	GPA up vs Control
EVI2A	Ecotropic viral integration site 2A	AK295311	1.52374	0.00438421	GPA up vs Control
HEPHL1	Hephaestin-like 1	ENST00000	1.52327	0.00122998	GPA up vs Control
CCL3	Chemokine (C-C motif) ligand 3	M23452	1.5197	0.00165335	GPA up vs Control
OR4G2P	Olfactory receptor, family 4, subfamily G, member 2	ENST00000	1.51594	0.00162342	GPA up vs Control
TRIB1	Tribbles homolog 1	BC063292	1.51569	0.00172164	GPA up vs Control
LOC728093	Putative POM121-like protein 1-like	AK296222	1.51564	0.00480556	GPA up vs Control
COTL1	Coactosin-like 1	BC010039	1.51555	0.00111027	GPA up vs Control
TM6SF1	Transmembrane 6 superfamily member 1	AF255922	1.51512	0.00036478	GPA up vs Control
PADI1	Peptidyl arginine deiminase, type I	AB033768	1.51433	0.0000737	GPA up vs Control
FLNA	Filamin A, alpha	GU727643	1.51299	0.001113	GPA up vs Control
AIF1	Allograft inflammatory factor 1	U95213	1.51298	0.00358603	GPA up vs Control
AIF1	Allograft inflammatory factor 1	U95213	1.51298	0.00358603	GPA up vs Control
AIF1	Allograft inflammatory factor 1	U95213	1.51298	0.00358603	GPA up vs Control
FCGR3A	Fc fragment of IgG, low affinity IIIa, receptor (CD16a)	BC036723	1.51261	0.00366065	GPA up vs Control
NFE4	Transcription factor NF-E4	AY258907	1.51216	0.00093699	GPA up vs Control
	---	---	1.51184	0.00349772	GPA up vs Control
	---	---	1.51184	0.00349772	GPA up vs Control
	---	---	1.51184	0.00349772	GPA up vs Control
	---	---	1.51184	0.00349772	GPA up vs Control
	---	---	1.51184	0.00349772	GPA up vs Control
	---	---	1.51163	0.00199704	GPA up vs Control
IL10RA	Interleukin 10 receptor, alpha	AK291645	1.51163	0.00199704	GPA up vs Control
OR4G2P	Olfactory receptor, family 4, subfamily G, member 2	ENST00000	1.50868	0.00153405	GPA up vs Control
	---	---	1.50816	0.00254939	GPA up vs Control
EGR2	Early growth response 2	BC035625	1.50719	0.00043572	GPA up vs Control
NFE2	Nuclear factor (erythroid-derived 2)	BC005044	1.50606	0.00407901	GPA up vs Control

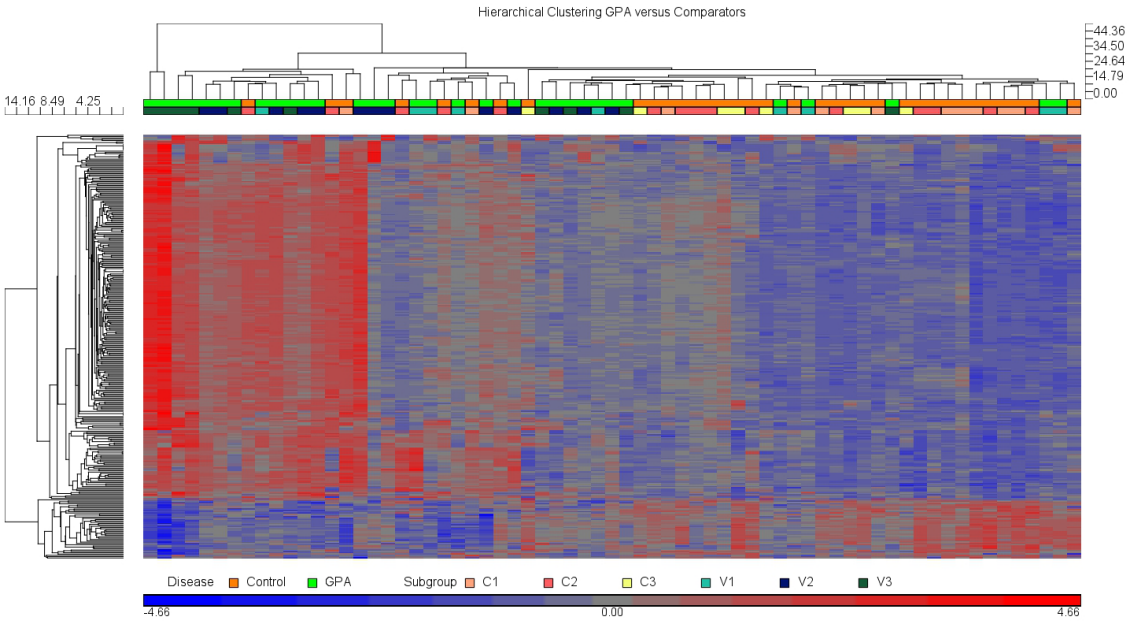
	---	---	1.50124	0.00310275	GPA up vs Control
DPEP2	Dipeptidase 2	AK092884	1.50049	0.00099243	GPA up vs Control
NAMPT	Nicotinamide phosphoribosyltransferase	AK292851	1.50032	0.00191901	GPA up vs Control
MAP9	Microtubule-associated protein 9	BC146864	-1.50446	0.00047938	GPA down vs Control
PLCB4	Phospholipase C, beta 4	AK122699	-1.50538	0.00054408	GPA down vs Control
	---	---	-1.51175	0.0003493	GPA down vs Control
CCDC148	Coiled-coil domain containing 148	BC107597	-1.51201	0.00323504	GPA down vs Control
C10orf67	Chromosome 10 open reading frame 67	BC035732	-1.51246	0.00203749	GPA down vs Control
ADH1C	Alcohol dehydrogenase 1C (class I), gamma polypeptide	BC062476	-1.51325	0.00331531	GPA down vs Control
	---	---	-1.51364	0.00042334	GPA down vs Control
C11orf74	Chromosome 11 open reading frame 74	AK290833	-1.51409	0.00025939	GPA down vs Control
IFT81	Intraflagellar transport 81 homolog	AK291043	-1.51578	0.00200741	GPA down vs Control
	---	---	-1.51722	0.00075136	GPA down vs Control
	---	---	-1.51779	0.00291369	GPA down vs Control
RGS7BP	Regulator of G-protein signaling 7 binding protein	ENST00000	-1.52789	0.00026536	GPA down vs Control
WDR17	WD repeat domain 17	AF492460	-1.52872	0.00246761	GPA down vs Control
KIF21A	Kinesin family member 21A	AY368076	-1.52948	0.00093627	GPA down vs Control
C8orf37	Chromosome 8 open reading frame 37	BC036855	-1.53052	0.00061594	GPA down vs Control
	---	---	-1.53234	0.00058007	GPA down vs Control
	---	---	-1.5348	0.00379364	GPA down vs Control
TTC6	Tetratricopeptide repeat domain 6	BC103914	-1.53802	0.00015061	GPA down vs Control
MSMO1	Methylsterol monooxygenase 1	BC107879	-1.5381	0.00040205	GPA down vs Control
LRRC17	Leucine rich repeat containing 17	U32907	-1.54151	0.00000563	GPA down vs Control
TEX9	Testis expressed 9	BC028119	-1.54374	0.00609571	GPA down vs Control
SLC9C2	Solute carrier family 9, member C2	BC042592	-1.54444	0.00762312	GPA down vs Control
ANKRD45	Ankyrin repeat domain 45	BC126353	-1.5445	0.00361202	GPA down vs Control
C2orf40	Chromosome 2 open reading frame 40	AF325503	-1.54487	0.00939148	GPA down vs Control
CAPS2	Calcyphosine 2	AF251056	-1.54727	0.00836881	GPA down vs Control
PPP1R42	Protein phosphatase 1, regulatory subunit 42	BC055413	-1.54981	0.00992998	GPA down vs Control
LRRC49	Leucine rich repeat containing 49	AK301971	-1.54989	0.00689001	GPA down vs Control

CTNNAL1	Catenin (cadherin-associated protein), alpha-like 1	AK022834	-1.55027	0.00039887	GPA down vs Control
FOXP2	Forkhead box P2	AK296957	-1.55248	0.00027727	GPA down vs Control
CLDN22	Claudin 22	AK303864	-1.55432	0.0025418	GPA down vs Control
PART1	Prostate androgen-regulated transcript 1	NR_028509	-1.55668	0.0003524	GPA down vs Control
	---	---	-1.56079	0.00929975	GPA down vs Control
FAM47E-STBD1	FAM47E-STBD1 readthrough	AK296418	-1.56387	0.00664947	GPA down vs Control
NOS2	Nitric oxide synthase 2, inducible	AF068236	-1.57433	0.00431696	GPA down vs Control
EYA1	Eyes absent homolog 1	NM_00050	-1.57522	0.00013261	GPA down vs Control
	---	---	-1.58143	0.0000242	GPA down vs Control
DYNLRB2	Dynein, light chain, roadblock-type 2	BC054892	-1.58421	0.00981259	GPA down vs Control
CCDC67	Coiled-coil domain containing 67	AK127973	-1.58539	0.00113418	GPA down vs Control
TEX26	Testis expressed 26	BC030277	-1.58755	0.00554262	GPA down vs Control
IRAK1BP1	Interleukin-1 receptor-associated kinase 1 binding protein	BC112253	-1.59597	0.0000644	GPA down vs Control
	---	---	-1.59729	0.0006238	GPA down vs Control
RPGRIP1L	RPGRIP1-like	BC136433	-1.5993	0.0026692	GPA down vs Control
	---	---	-1.59978	0.003208	GPA down vs Control
ENPP5	Ectonucleotide pyrophosphatase/phosphodiesterase 5	BX647968	-1.60552	0.0095529	GPA down vs Control
IFT74	Intraflagellar transport 74 homolog	AY040325	-1.62152	0.00047702	GPA down vs Control
TSGA10	Testis specific, 10	AF254756	-1.62271	0.00113451	GPA down vs Control
FMO6P	Flavin containing monooxygenase 6 pseudogene	ENST00000	-1.62536	0.00022208	GPA down vs Control
SERPINB10	Serpin peptidase inhibitor, clade B (ovalbumin), member 1	BC096217	-1.62789	0.0045473	GPA down vs Control
C14orf45	Chromosome 14 open reading frame 45	AK097531	-1.62952	0.00681647	GPA down vs Control
	---	---	-1.63491	0.00112949	GPA down vs Control
	---	---	-1.64663	0.00035407	GPA down vs Control
UGT2B7	UDP glucuronosyltransferase 2 family, polypeptide B7	J05428	-1.64954	0.00095556	GPA down vs Control
	---	---	-1.65892	0.00611281	GPA down vs Control
	---	---	-1.66261	0.00025303	GPA down vs Control
	---	---	-1.66585	0.00072222	GPA down vs Control
IL33	Interleukin 33	BC047085	-1.68209	0.000036	GPA down vs Control
C11orf70	Chromosome 11 open reading frame 70	BC006128	-1.68532	0.00875223	GPA down vs Control

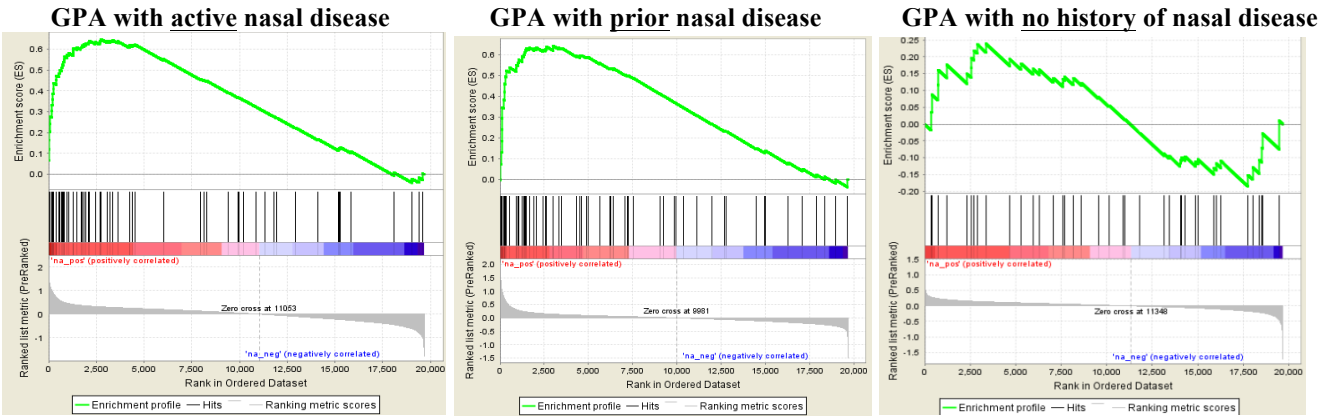
	---	---	-1.70642	0.00116451	GPA down vs Control
	---	---	-1.74224	0.00538231	GPA down vs Control
GALNT13	UDP-N-acetyl-alpha-D-galactosamine	BC101031	-1.79544	0.0000489	GPA down vs Control
UGT2A1	UDP glucuronosyltransferase 2 family, polypeptide A1	AK304249	-1.87412	0.00077936	GPA down vs Control
SPARCL1	SPARC-like 1 (hevin)	AK294335	-2.00026	0.0000041	GPA down vs Control
	---	---	-2.02177	4.57E-07	GPA down vs Control
NTS	Neurotensin	BC010918	-2.51019	0.0000762	GPA down vs Control



SUPPLEMENTARY FIGURE 1 Volcano Plot of differentially expressed genes between patients with granulomatosis with polyangiitis and the composite comparator group. Statistical significance (p-value) is plotted against fold change. Differentially expressed genes are shown in blue ($p<0.05$), grey ($p=0.05$), or red ($p>0.05$). Orange vertical lines denote fold change cut-off of -1.5 and 1.5. Selected differentially expressed genes are labeled with their official gene symbol.



SUPPLEMENTARY FIGURE 2 Heatmap depicting unsupervised clustering of 393 probes that were differentially expressed between granulomatosis with polyangiitis (GPA) and the composite comparator group (control) at absolute fold change > 1.5 and false discovery rate < 0.05. Upregulated genes are depicted in red and downregulated genes are shown in blue. The double color bar at the top of the heatmap illustrates the disease status [GPA = green; control = orange] and the subgroup status [C1 = healthy control; C2 = sarcoidosis; C3 = allergic rhinitis; V1 = GPA with no prior nasal disease; V2 = GPA with prior nasal disease; V3 = GPA with active nasal disease]. The bottom color bar indicates the range of differential expression. These results reveal imperfect separation by disease and subgroup status based on unsupervised clustering of differentially expressed genes between patients with GPA and controls.



SUPPLEMENTARY FIGURE 2: Gene Set Enrichment Analysis (GSEA) was used to compare differentially expressed genes derived from nasal brushings to published transcriptomic data sets in GPA derived from blood. Two prior studies have examined whole-genome gene expression profiling in AAV compared to healthy controls using blood as the tissue source (Cheadle et al *A&R* 2010; Lyons et al *ARD* 2010). Both studies performed whole-genome microarray analysis on neutrophils and peripheral mononuclear blood cells (PBMCs) isolated by density gradient preparations. Significant enrichment of previously published neutrophil and PBMC gene expression signatures in GPA was observed in nasal mucosal gene expression signatures from patients with GPA with active or prior nasal disease (FDR_{GSEA}<0.25). Transcription signatures were not significantly enriched in the GPA group without a history of nasal disease. The figure depicts representative enrichment plots using PBMC signatures from the study by Cheadle et al. These findings suggest that peripheral blood neutrophil and mononuclear gene expression levels associated with GPA are similarly altered in the nasal gene expression profiles of patients with active or prior nasal disease which may reflect ongoing inflammation that isn't clinically apparent, infiltration of myeloid cells into remodeled tissue, or induction of these genes by epithelial cells.