The Microglial Sensome Revealed by Direct RNA Sequencing

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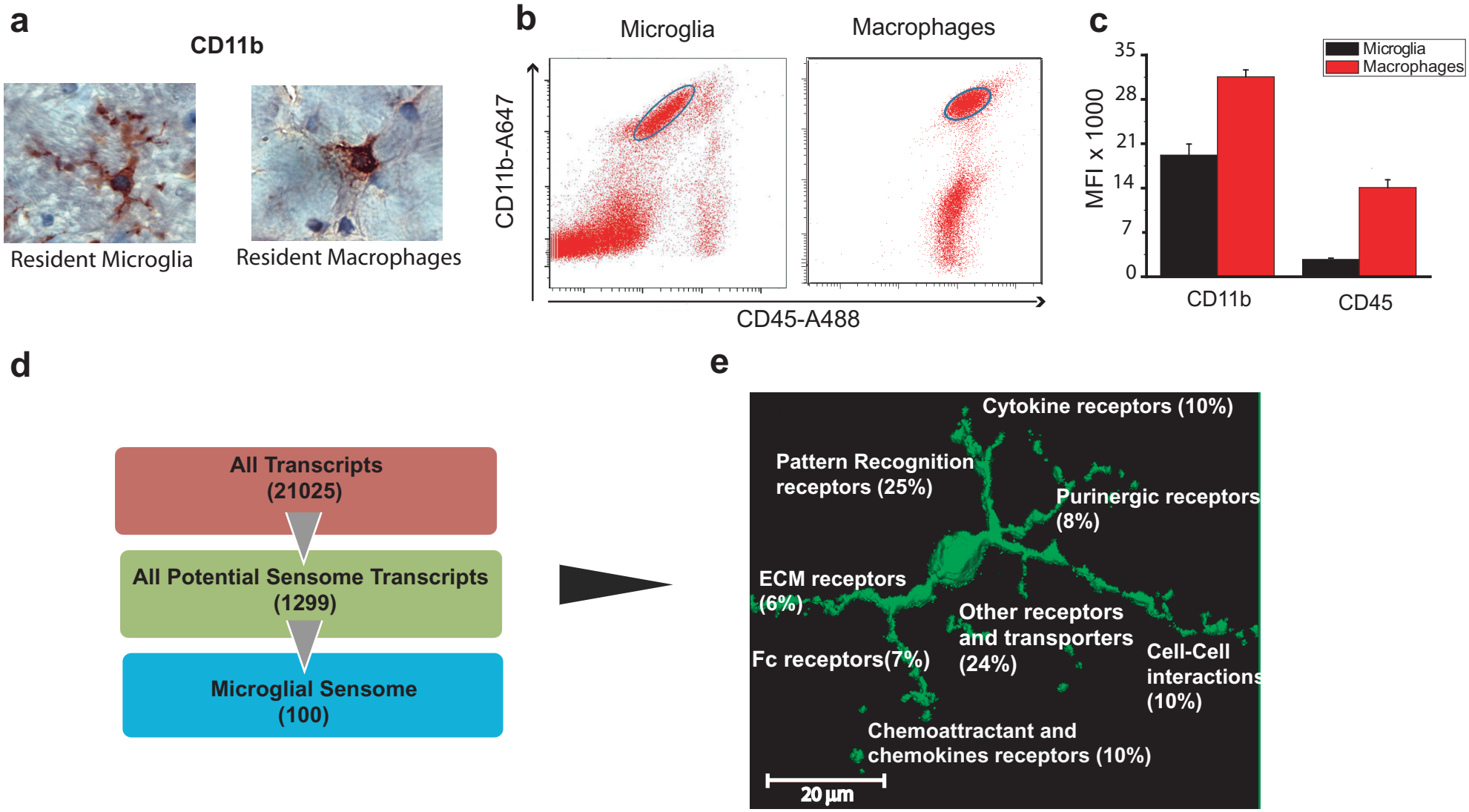
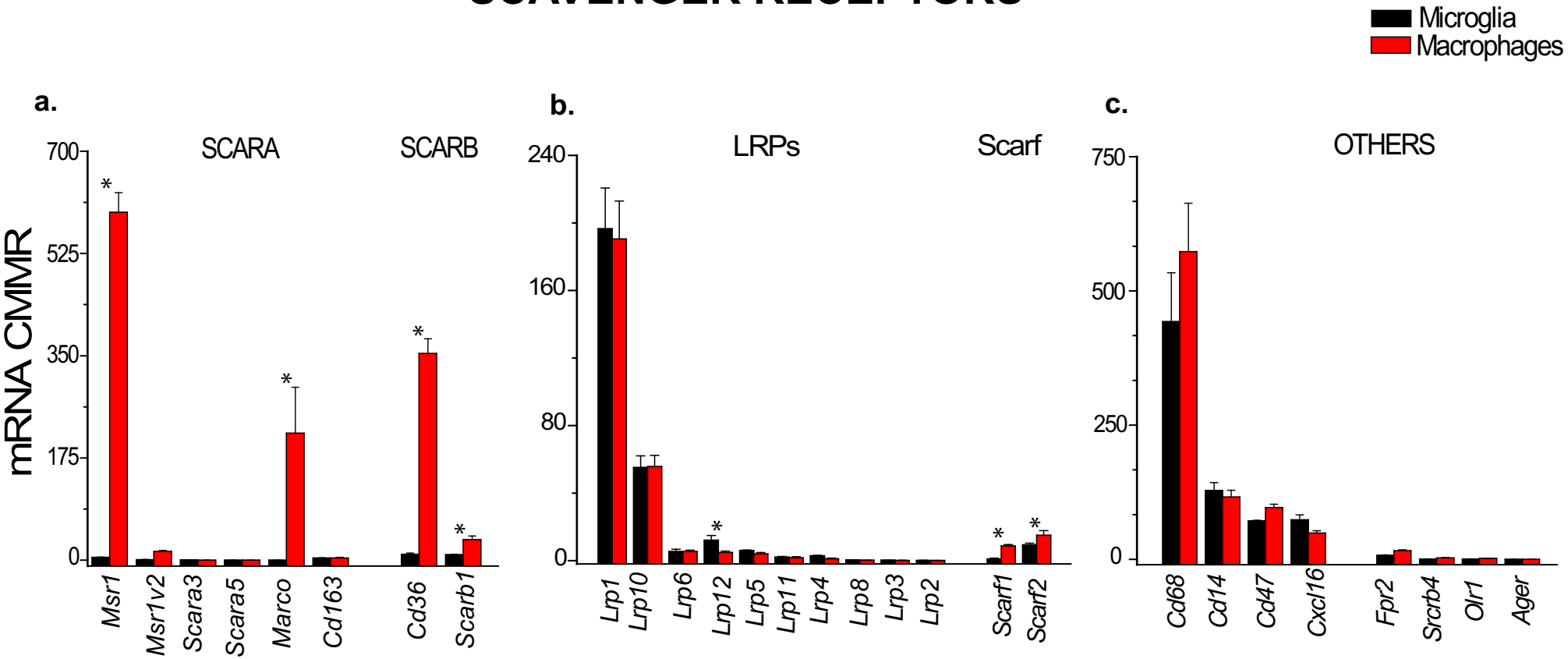
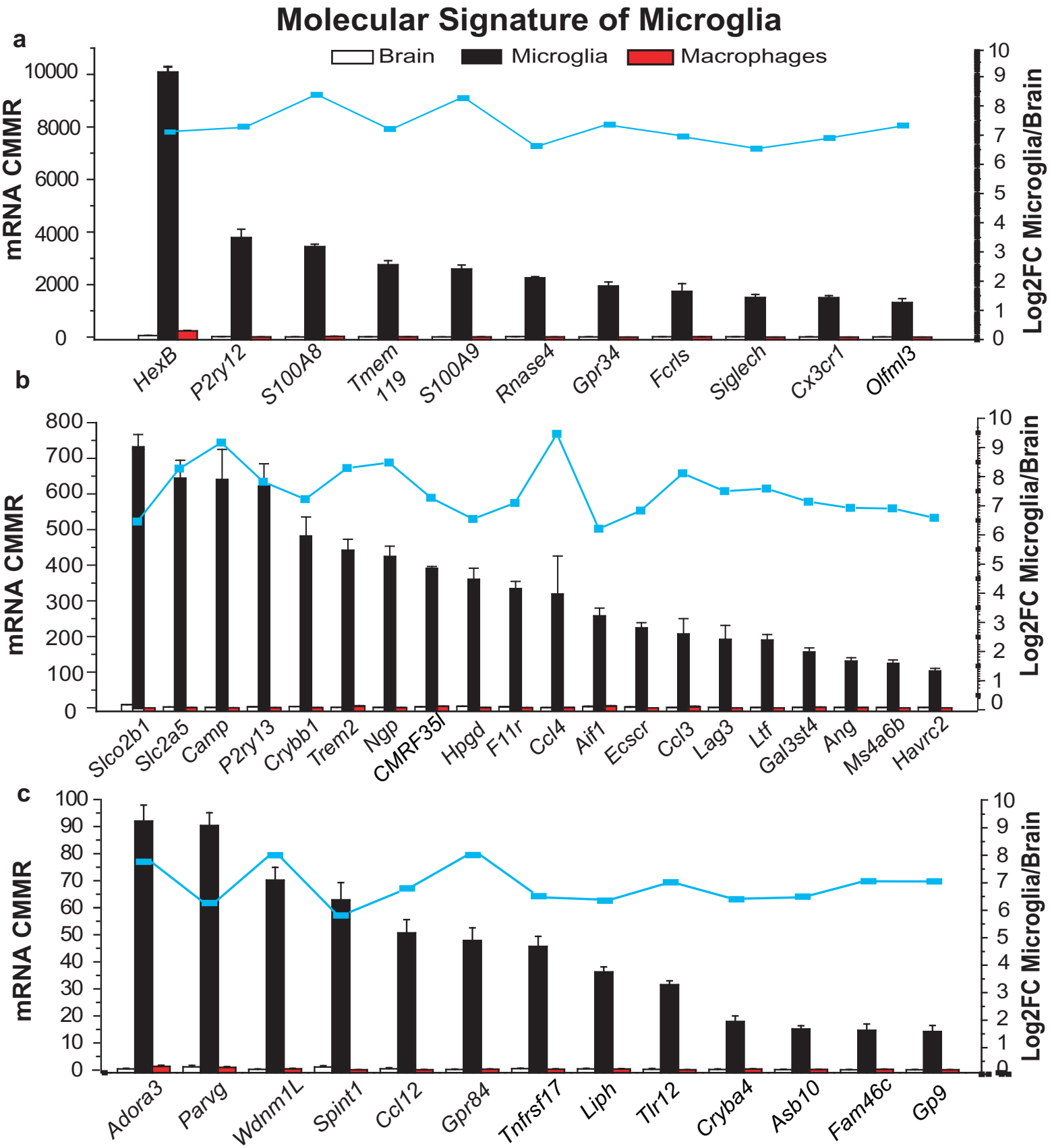
Supplementary Material



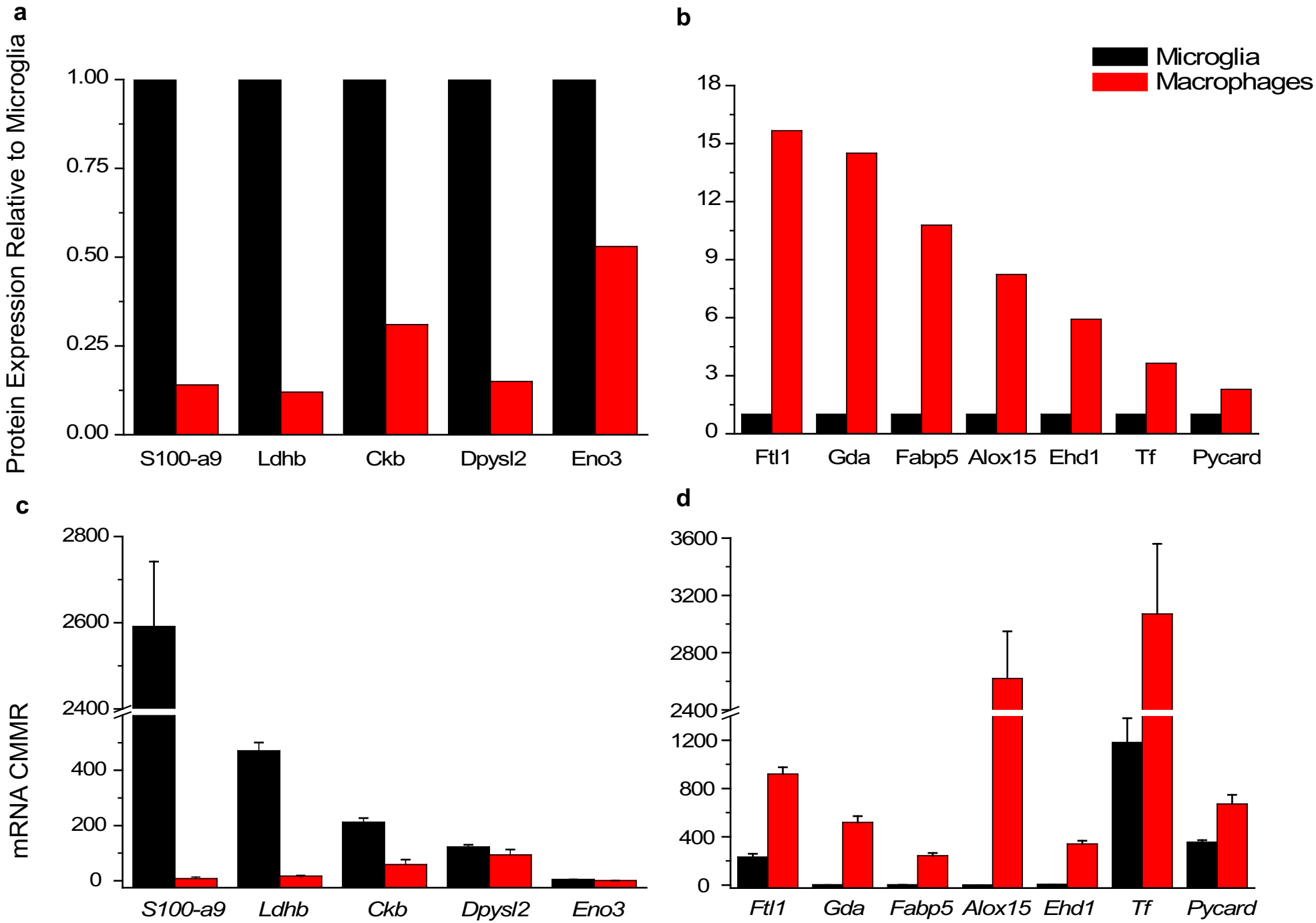
Supplementary Figure 1: Overview of cell characterization and experimental flow. a-b. Resident microglia and macrophages express CD11b *in situ* and by flow cytometry. Brain and peritoneal sections were stained with anti-CD11b antibodies (red-brown stain) and counter-stained with hematoxylin. Microglia and macrophages were stained with Alexa 647-labeled anti-CD11b and Alexa 488-labeled anti-CD45 antibodies. The gates drawn show the populations of microglia and macrophages sorted for DRS. **c.** Microglia express high CD11b and low-to-intermediate CD45, while macrophages expressed higher CD11b and CD45 than microglia. The CD11b axis voltage is set lower for macrophages to allow them to be seen on the dot plot. **d.** Microglia isolated by flow were processed for DRS. Of the 21025 transcripts measured, we used gene ontology (GO) analysis and identified 1299 potential sensome genes. Of these, we selected the top 100 transcripts with the highest enrichment of microglia/brain and termed this gene collection as the microglial "Sensome". **e.** Three dimensional image of a mouse microglia with the summary of the GO analysis of the Sensome showing the various classes of genes identified.



S**upplementary Figure 2. Comparative expression of scavenger receptor genes in microglia (black) and peritoneal macrophages (red).** Data were determined by DRS and are expressed as mRNA copies per million mapped reads (CMMR). a. *Scara* and *Scarb* families of scavenger receptors. Macrophages from normal mice express significantly higher mRNA levels of *MSR1*, *Marco*, and *Cd36* and *Scarb1* than microglia. b. *Lrp* (Low-density lipoprotein-related receptor protein) and *Scarf* families. There are significant differences between microglia and macrophges only in expression of *Lrp12* and *Scarf1*and *Scarf2* scavenger receptor family members. Highest expression is seen with *Lrp1* and *Lrp10*. c. Other scavenger receptors. Microglia and macrophages express similar levels of other scavenger receptors with highest expression seen for *Cd68*, *Cd14*, *Cd47* and *Cxcl16*.
*p values are <0.00001.

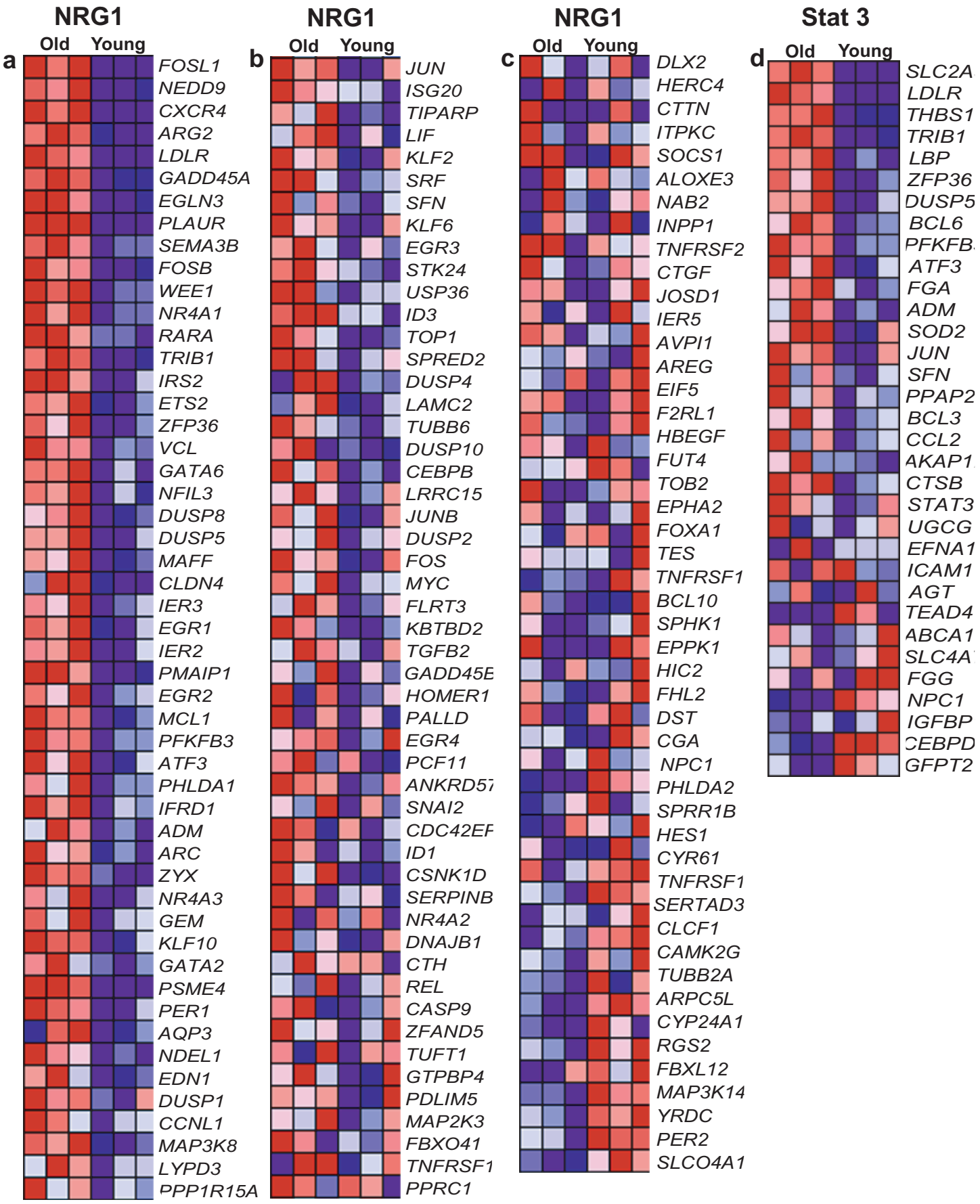


Supplementary Figure. 3: Molecular signature of microglia. Microglia signature genes compared to brain and macrophages . Data expressed as mRNA CMMR (copies per million mapped reads) as determined by DRS (left y-axis). 3a presents only transcripts expressed at >1000 CMMR, 3b presents trasncripts expressed between 100 to 1000 CMMR, and 3c shows transcripts expressed between 10 to 100 CMMR. In all graphs, the blue line (right y-axis) represents Log2 fold enrichment of microglia over whole brain, indicating a similar level of enrichment for all transcripts shown, regardless of the level of expression.

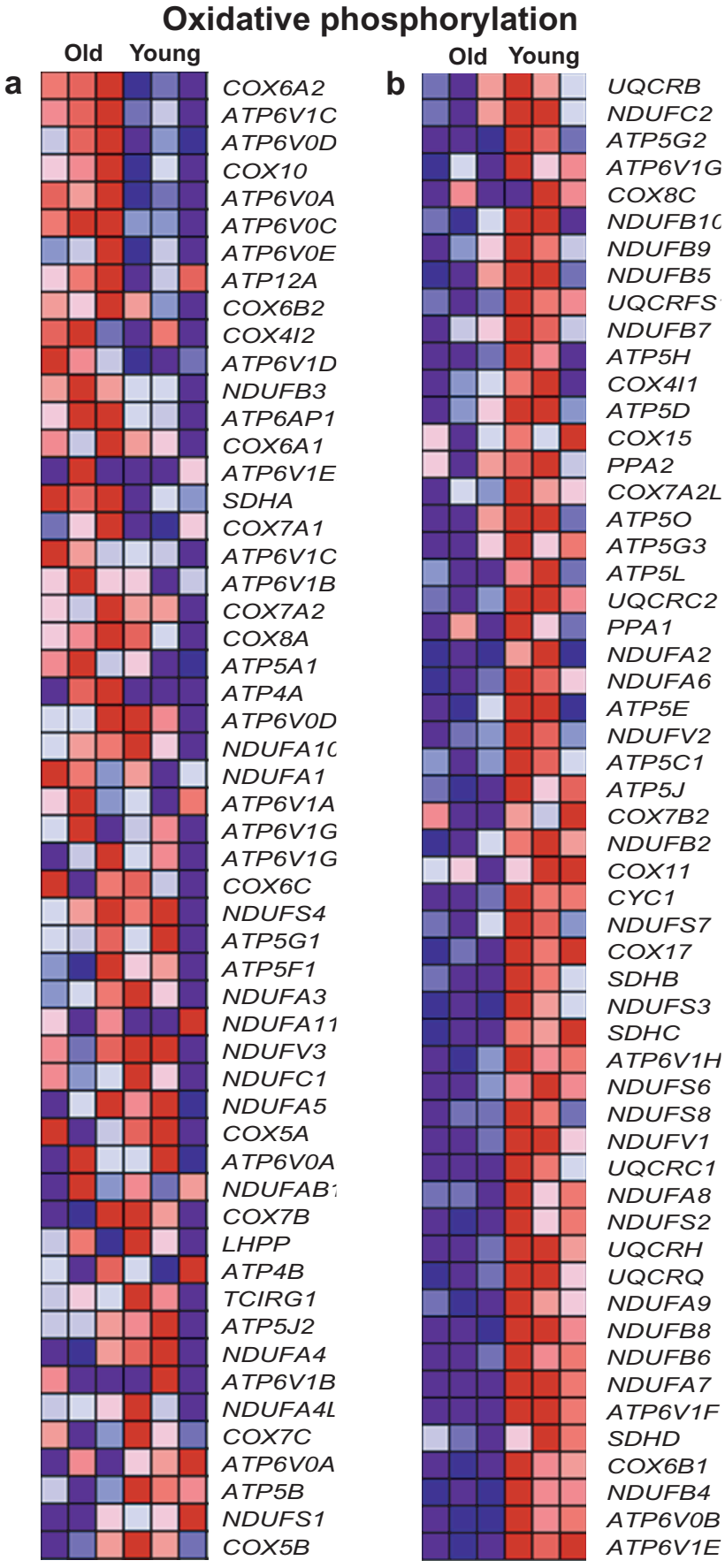


Supplementary Figure 4: Comparison of expression of proteins identified by 2D DIGE with mRNA levels in microglia and macrophages.

a-b. Expression levels of 2D DIGE-identified proteins in peritoneal macrophages relative to microglia levels (microglia levels set to 1.0).
c-d. Expression of mRNA levels corresponding to identified proteins. Expression of mRNA and protein levels follow the same trend.



Supplementary Figure 5:NRG1 and Stat3 are examples of neuroprotective pathways upregulated in microglia from old mice. Heatmaps depicting expression levels of transcripts of the NRG1 (a-c), and Stat3 (d)pathways in microglia from old and young animals. Enrichment plots for these pathways relative to the whole transcriptome are shown in figure 6.



Supplementary Figure 6 : Oxidative phosphorylation is an example of a potential neurotoxic pathway downregulated in microglia from old mice. Heatmaps depicting expression levels of transcripts of oxidative phosphorylation pathways (a,b) in microglia from old and young animals. Enrichment plots for this pathway relative to the whole transcriptome is shown in figure 6.

Supplementary Table 1: The Microglia Sensome							
Genbank link	**Gene names**	**Mean Brain**	**Stddev Brain**	**Mean Microglia**	**Stddev Microglia**	**Enrichement Fold M/B**	**ligand**
Purinergic and related receptors							
NM_027571	*P2ry12* = P2Y purinoceptor 12	20.26	1.47	3781.22	326.80	186.63	Nucleotides
NM_028808	*P2ry13* = P2Y purinoceptor 13	2.99	0.48	614.13	70.26	205.67	Nucleotides-ADP
NM_183168	*P2ry6* = P2Y purinoceptor 6	1.81	0.52	189.12	15.26	104.71	Nucleotides-UDP
NM_011823	*Gpr34* = probable G-protein coupled receptor 34	9.91	1.03	1941.26	154.82	195.81	Nucleotides also Lysophosphatydilserine
NM_001174169	*Adora3* = adenosine receptor A3	0.41	0.21	92.00	5.96	222.02	Adenosine
NM_009848	*Entpd1* = ectonucleoside triphosphate diphosphohydrolase	4.28	0.61	291.66	18.28	68.15	Nucleotides-ATP
NM_028261	*Tmem173* = transmembrane protein 173 = STING	2.40	1.20	212.87	29.99	88.61	Bacterial Cyclic Di-GMP
NM_001122596	purinergic receptor P2Y G-protein coupled	0.31	0.16	19.10	1.36	62.37	Nucleotides
Cytokine receptors							
NM_001037859	*Csf1r* = macrophage colony-stimulating factor 1 receptor	12.54	1.21	1634.12	127.37	130.33	m-CSF, IL-34
NM_007782	*Csf3r* = granulocyte colony-stimulating factor receptor	2.28	0.15	81.27	3.22	35.65	g-CSF
NM_009370	*Tgfbr1* = TGF-beta receptor type-1	8.01	0.46	661.88	111.80	82.61	Tgf-β
NM_009371	*Tgfbr2* = TGF-beta receptor type-2	5.62	0.34	223.96	34.43	39.87	Tgf-β
NM_010511	*Ifngr1* = interferon gamma receptor 1 precursor	9.82	0.64	610.47	27.50	62.18	Inf-γ

Genbank link	Gene names	Mean Brain	Stddev Brain	Mean Microglia	Stddev Microglia	Enrichement Fold M/B	ligand
NM_008348	*Il10ra* = interleukin-10 receptor subunit alpha	1.85	0.69	187.15	3.30	101.12	IL-10
NM_010559	*Il6ra* = interleukin-6 receptor subunit alpha precursor	1.82	0.27	112.16	10.66	61.47	IL-6
NM_021887	*Il21r* = interleukin-21 receptor	0.27	0.02	46.72	7.41	175.43	IL-21
NM_011608	*Tnfrsf17* = tumor necrosis factor receptor superfamily	0.49	0.19	45.69	3.74	92.71	BAFF
NM_011610	*Tnfrsf1b* = tumor necrosis factor receptor superfamily	0.35	0.28	27.07	1.45	76.49	TNF
Chemokine and related receptors							
NM_009987	*Cx3cr1* = CX3C chemokine receptor 1	10.48	1.33	1493.90	87.70	142.56	cx3cl1
NM_009917	*Ccr5* = C-C chemokine receptor type 5	2.99	0.43	568.60	35.28	189.82	Ccl3, Ccl4, Ccl8, RANTES
NM_009779	*C3ar1* = C3a anaphylatoxin chemotactic receptor	0.90	0.33	88.77	10.28	98.69	C3a
NM_001081211	*Ptafr* = platelet-activating factor receptor	0.74	0.23	86.33	10.60	116.87	PAF
NM_001146005	*Gpr77* = C5a anaphylatoxin chemotactic receptor C5L2	0.59	0.25	75.50	12.43	128.48	C5a
NM_008153	*Cmklr1* = chemokine-like receptor 1	0.77	0.34	62.11	3.69	80.48	The chemokine chemerin
NM_021476	*Cysltr1* = cysteinyl leukotriene receptor 1	0.36	0.20	30.19	1.20	83.54	LTD4

Genbank link	Gene names	Mean Brain	Stddev Brain	Mean Microglia	Stddev Microglia	Enrichement Fold M/B	ligand
NM_017466	*Ccrl2* = C-C chemokine receptor-like 2	0.63	0.34	31.85	8.92	50.51	Chemerin
NM_026036	*Cmtm6* = CKLF-like MARVEL transmembrane domain-containing	10.44	0.91	451.56	99.05	43.27	May bind cxcl7
NM_007577	*C5ar1* = C5a anaphylatoxin chemotactic receptor	0.73	0.24	29.55	2.39	40.37	AKA CD88 C5a Staph. Aureus
Fc receptors							
NM_010188	*Fcgr3* = low affinity immunoglobulin gamma Fc region	3.44	0.88	1004.50	140.04	292.13	Fc portion of IgG
NM_010185	*Fcer1g* = high affinity immunoglobulin epsilon receptor	3.48	0.58	837.23	91.60	240.28	Fc portion of IgE
NM_010187	*Fcgr2b* = low affinity immunoglobulin gamma Fc region	3.65	1.05	410.55	10.62	112.60	Fc portion of IgG-Low affinity
NM_010186	*Fcgr1* = high affinity immunoglobulin gamma Fc receptor I	1.64	0.12	289.36	46.37	176.87	Fc portion of IgG-High affinity
NM_133978	*Cmtm7* = CKLF-like MARVEL transmembrane domain	2.39	1.12	244.96	27.08	102.44	IgM ?
NM_178165	*Fcrl1* = Fc receptor-like protein 1	0.40	0.39	48.69	3.01	120.57	IgG?
NM_144559	*Fcgr4*=Fc receptor IgG low affinity IV	0.17	0.14	21.43	1.4	126.37	Binds Fc fragment of IgG; PMID: 20974962

Genbank link	Gene names	Mean Brain	Stddev Brain	Mean Microglia	Stddev Microglia	Enrichement Fold M/B	ligand
Pattern recognition and related receptors							
NM_009151	*Selplg* = P-selectin glycoprotein ligand 1	12.55	0.80	1446.83	180.23	115.32	Enterovirus 71, Hand foot and mouth disease AKA CD162
NM_010745	*Ly86* = lymphocyte antigen 86 precursor	6.01	1.82	1073.54	95.10	178.66	AKA MD1 LPS
NM_009853	*Cd68* = macrosialin	5.61	0.91	442.90	90.95	78.94	Ox LDL, SR
NM_031254	*Trem2* = triggering receptor expressed on myeloid cells 2	1.55	0.26	442.09	30.70	284.64	Apoptotic neurons
NM_008533	*Cd180* = CD180 antigen	1.06	0.61	248.03	33.78	234.41	LPS AKA rp105
NM_011905	*Tlr2* = toll-like receptor 2	1.28	0.11	195.84	14.42	152.53	pathogens and endogenous ligands
NM_007645	*Cd37* = leukocyte antigen CD37	0.67	0.41	158.79	21.69	236.40	β-glucan ? interacts with dectin-1
NM_133211	*Tlr7* = toll-like receptor 7	1.20	0.40	133.53	8.94	111.10	pattern recognition receptor
NM_009841	*Cd14* = monocyte differentiation antigen CD14	0.88	0.40	128.14	14.64	145.99	pattern recognition receptor
NM_001204241	*Clec4a3* = dendritic cell inhibitory receptor 3	1.56	0.31	106.20	1.22	67.92	HIV AKA DCIR3
NM_021297	*Tlr4* = toll-like receptor 4	0.84	0.16	47.67	4.89	56.82	Bacterial, fungal and parasitic ligands
NM_205820	*Tlr13* = toll-like receptor 13	0.25	0.20	10.77	1.05	43.41	Bacterial 23s rRNA
NM_021364	*Clec5a* = C-type lectin domain family 5 member A	1.33	0.65	103.31	10.29	77.70	Japanese Encephalitis Virus, Dengue Virus
NM_134250	*Havcr2* = hepatitis A virus cellular receptor 2 homolog	1.177	0.42	102.79	7.88	87.33	hepatitis A virus, AKA Tim3 also binds galectin 9
NM_020008	*Clec7a* = C-type lectin domain family 7 member A	1.16	0.33	90.46	13.78	77.94	β glucan and yeast

Genbank link	Gene names	Mean Brain	Stddev Brain	Mean Microglia	Stddev Microglia	Enrichement Fold M/B	ligand
NM_023158	*Cxcl16* = C-X-C motif chemokine 16	1.01	0.12	73.65	9.26	73.20	G+ and G- bacteria, OxLDL, MTB
NM_007649	*Cd48* = CD48 antigen	0.40	0.23	54.03	3.10	136.41	MTB, E-coli
NM_008522	*Ltf* = lactotransferrin	1.09	0.36	189.98	15.34	174.58	AGEs, Bacteria
NM_010545	*Cd74* = H-2 class II histocompatibility antigen gamma	8.62	1.24	561.40	138.82	65.12	Bacteria (H. Pylori), HIV
NM_178924	*Upk1b* = uroplakin-1b	1.76	0.44	92.79	14.57	52.63	Bacteria (E. Coli)
NM_205823	*Tlr12* = toll-like receptor 12	0.24	0.34	31.52	1.47	131.90	Parasites (Taenia solium)
NM_030682	*Tlr1* = toll-like receptor 1	0.40	0.06	26.25	2.36	65.62	Bacterial, fungal and parasitic ligands
NM_153510	*Pilra* = paired immunoglobulin-like type 2 receptor alpha	0.58	0.11	30.53	2.05	52.39	CD99,HSV-1, NPDC1, COLEC12, PANP (neural tissue)
NM_011604	*Tlr6* = toll-like receptor 6	0.48	0.04	22.71	0.53	46.95	Microbial and Endogenous ligands
NM_001033632	*Ifitm6* = interferon induced transmembrane protein 6	0.83	0.52	34.99	0.76	42.06	May regulate viral entry
ECM receptors							
NM_001082960	*Itgam* = integrin alpha-M	7.25	0.36	715.13	70.03	98.57	Fibrinogen, other ECMs and Amyloid β

Genbank link	Gene names	Mean Brain	Stddev Brain	Mean Microglia	Stddev Microglia	Enrichement Fold M/B	ligand
NM_008404	*Itgb2* = integrin beta-2	2.10	0.58	354.39	29.02	169.03	CD18 binds Amyloid β and ECM
NM_010580	*Itgb5* = integrin beta-5	11.52	1.66	592.77	39.96	51.44	Adenovirus, Vitronectin
NM_010130	*Emr1* = EGF-like module-containing mucin-like hormone	3.77	0.70	495.04	25.71	131.35	AKA F4/80, Hormones ? ECM adhesion ?
NM_001033141	*Ecscr* = endothelial cell-specific chemotaxis regulator	2.17	0.99	223.88	15.07	103.32	ECM?, Intracellular filamin
NM_178611	*Lair1* = Leukocyte-associated immunoglobulin-like	2.30	0.15	170.92	11.29	74.45	Collagens
Endogenous ligands receptors, sensors and transporters							
NM_178706	*Siglech* = sialic acid binding Ig-like lectin H	13.55	0.57	1501.57	124.57	110.81	Sialic acid
NM_175316	*Slco2b1* = solute carrier organic anion transporter family	9.10	0.40	725.06	41.72	79.69	Organic anions sensing/uptake/transport
NM_019741	*Slc2a5* = solute carrier family 2, facilitated glucose	2.27	0.29	636.67	57.71	280.91	Glucose AKA Glut5
NM_001159301	*Lgals9* = galectin-9	3.60	0.88	231.94	32.35	64.44	Urate, glycans
NM_183031	*Gpr183* = G-protein coupled receptor 183	1.25	0.69	163.55	10.97	130.61	oxysterols
NM_019432	*Tmem37* = voltage-dependent calcium channel gamma-like	2.15	0.71	161.97	16.03	75.50	inorganic cations ?
NM_021293	*Cd33* = myeloid cell surface antigen CD33	0.74	0.16	56.56	0.66	76.18	sialic acid sensing AKA siglec 3

Genbank link	Gene names	Mean Brain	Stddev Brain	Mean Microglia	Stddev Microglia	Enrichement Fold M/B	ligand
NM_030720	*Gpr84* = G-protein coupled receptor 84	0.18	0.15	47.84	4.75	263.50	medium chain fatty acids
NM_011405	*Slc7a7* = Y+L amino acid transporter 1	0.91	0.28	81.27	2.45	89.28	Amino acids
NM_013706	*Cd52* = CAMPATH-1 antigen precursor	4.57	0.66	392.64	43.16	86.00	C1q
NM_145581	*Siglec5* = sialic acid-binding Ig-like lectin 5	0.32	0.18	20.49	1.099	64.79	Sialic acid
NM_008339	*Cd79b* = B-cell antigen receptor complex-associated	0.37	0.13	20.32	1.44	55.63	Involved in antigen binding, a component of the BCR complex
NM_030696	*Slc16a3* = monocarboxylate transporter 4	1.03	0.46	46.64	5.06	45.07	Monocarboxylate
Cell-Cell Interactions							
NM_010493	*Icam1* = intercellular adhesion molecule 1	1.60	0.66	64.16	5.66	40.20	LFA-1[96], Rhinoviruses
NM_023892	*Icam4* = intercellular adhesion molecule 4	1.55	0.65	64.12	5.70	41.45	β2 Integrins
NM_013489	*Cd84* = SLAM family member 5 precursor	0.13	0.05	29.11	0.87	228.87	CD84 (Homophilic)
NM_008479	*Lag-3* = lymphocyte activation gene 3	1.16	0.36	191.56	39.56	164.66	binds MHC II
NM_019388	*Cd86* = T-lymphocyte activation antigen CD86 precursor	1.14	0.26	155.07	6.44	135.22	binds CD28 on T Cells

Genbank link	Gene names	Mean Brain	Stddev Brain	Mean Microglia	Stddev Microglia	Enrichement Fold M/B	ligand
NM_011210	*Ptprc* = receptor-type tyrosine-protein phosphatase C	1.21	0.24	105.93	10.51	87.52	galectin-1 involved in cell-cell interactions, CMV
NM_011662	*Dap12* = TYRO protein tyrosine kinase-binding protein	5.34	0.83	831.82	79.032	155.76	Lipids from membranes AKA CD300L
NM_021349	*Tnfrsf13b* = TNF receptor superfamily member AKA TACI	1.99	0.16	91.90	9.67	46.08	BLyS
NM_011608	*Tnfrsf17* = TNF receptor superfamily member 17 AKA BCMA	0.49	0.19	45.69	3.74	92.71	BAFF
NM_001043317	*Cd22* = B-cell receptor CD22	0.17	0.15	12.80	1.82	76.46	CD45, Sialic acids, IgM
Potential sensors but no known ligands							
NM_146162	*Tmem119* = transmembrane protein 119 precursor	15.55	0.95	2753.65	154.73	177.07	Regulation of osteoblast function-AKA OBIF, TM protein so potential sensor
NM_007651	*Cd53* = leukocyte surface antigen CD53	6.58	0.58	1516.56	94.31	230.63	Shown in a microglial cell line tetraspanin no known sensing function
NM_001159572	Platelet receptor Gi24	4.38	0.34	351.84	47.19	80.29	Unknown function. Not known to be expressed on microglia aka Dies1

Genbank link	Gene names	Mean Brain	Stddev Brain	Mean Microglia	Stddev Microglia	Enrichement Fold M/B	ligand
NM_029612	*Slamf9* = SLAM family member 9 precursor	0.59	0.39	139.72	12.24	236.47	Unknown but Measles virus and bacterial ligands bind Slamf1
NM_001033780	Transmembrane protein *C1orf162* homolog	0.27	0.15	65.38	4.75	244.44	Unknown function. Not known to be expressed on microglia
NM_001170332	*Clec4a2* = C-type lectin domain family 4 member A2 AKA Dcir	0.96	0.54	50.24	3.01	52.25	Unknown ligand. Deficiency causes autoimmune disease due to excess expansion of dendritic cells
NM_001190310	*Clec4b1* = C-type lectin domain family 4, member b1 isoform	0.31	0.21	30.61	0.68	99.62	Unknown Ligand but associates with Fcgr
NM_001081239	*Lilra5* = leukocyte immunoglobulin-like receptor	0.32	0.23	28.54	2.40	89.37	Natural ligand unknown but cross-linking on macrophages upregulates TNF, Il1b, IL6
NM_025376	*Tmem8c* = transmembrane protein 8C	0.28	0.24	14.70	2.05	53.37	Unknown function. Not known to be expressed on microglia
NM_027965	*Gpr160* = probable G-protein coupled receptor 160	0.71	0.14	31.63	4.38	44.57	Unknown function. Not known to be expressed on microglia
NM_001099332	*Cd101* = immunoglobulin superfamily member 2	0.27	0.15	10.72	0.76	40.08	Natural ligand unknown, involved in T cell activation

All p-values for comparisons between microglia vs. brain for the above transcripts were $<10^{-5}$ using the EdgeR analysis.

Supplementary Table 2. Microglia Sensome Genes Expression in Macrophages						
Top 25 Genes in Microglia: Figure 2c						
Gene Name	Microglia	SD Mic	Macrophages	SD Mac	Log2 Fold Difference	p value*
Hexb	10088.77	204.6	232.81	20.23	5.44	*
P2ry12	3781.22	326.8	4.6	0.84	9.67	*
S100a8	3442.67	91.53	26.36	8.22	7.03	*
Tmem119	2753.65	154.73	12.09	2.89	7.84	*
S100a9	2591.5	150.21	8.01	5.53	8.27	*
Rnase4	2258.13	44.69	6.19	1.46	8.51	*
Gpr34	1941.26	154.82	0.31	0.14	12.18	*
Fcrls	1735.36	300.71	12.5	1.52	7.12	*
Siglech	1501.57	124.57	0.1	0.13	13.72	*
Cx3cr1	1493.9	87.7	0.32	0.19	12.2	*
Olfml3	1310.27	157.74	0.04	0.06	14.93	*
Fos	1196.3	601.78	32.5	14.2	5.2	*
Slco2b1	725.06	41.72	0.08	0.08	13.37	*
Tgfbr1	661.88	111.8	20.28	3.1	5.03	*
Slc2a5	636.67	57.71	0.6	0.29	10	*
Camp	633	91.94	0.11	0.12	11.88	*
P2ry13	614.13	70.26	0.42	0.2	10.47	*
Itgb5	592.77	39.96	0.73	0.33	9.6	*
Crybb1	481.82	46.25	0.67	0.28	9.45	*
Syngr1	452.94	29.29	16.15	1.68	4.81	*
Trem2	442.09	30.7	5	1.06	6.48	*
Gpr56	434.39	34.52	0.05	0.06	12.92	*
Ngp	424.46	28.9	0.54	0.19	9.19	*
CMRF35-like molecule	391.42	5.18	4.17	0.59	6.55	*
Hpgd	360.2	31.59	0.75	0.33	8.78	*
Top 25 Genes in Macrophages: Figure 2d						
Gene Name	Microglia	SD Mic	Macrophages	SD Mac	Log2 Fold Difference	p value*
Fn1	9.66	1.97	15327.25	1490.36	10.65	*
Slpi	11.47	1.36	13995.18	1602.76	10.26	*
Saa3	0.59	0.54	9819.21	3761.02	13.64	*
Prg4	0.73	0.15	5882.87	440.07	12.95	*
Cfp	7.78	2.17	5003.61	832.46	9.31	*
Cd5l	1.18	0.18	4563.08	573.53	11.84	*
Gm11428	30.61	8.17	4340.94	669.69	7.13	*
Crip1	47.51	6.92	3745.57	374.16	6.3	*
Pf4	47.44	7.34	3245.96	202.38	6.09	*
Alox15	0.56	0.22	2619.73	328.79	11.89	*
Ecm1	1.31	0.47	2101.98	318.96	10.52	*
Thbs1	21.04	7.01	1964.95	256.03	6.54	*
Emilin2	2.24	0.55	1779.38	152.02	9.58	*
C4b	5.37	1	1414.73	235.47	8.04	*
Retnla	2.15	1.06	1282.59	177.11	8.8	*
Fabp4	0.53	0.1	1261.89	123.26	10.98	*
F5	1.45	0.21	1150.07	150.86	9.56	*
Ednrb	2.07	0.72	1087.94	70.41	8.92	*
Icam2	4.78	0.89	1068.61	154.26	7.81	*
Fcna	2.36	0.24	977.21	174.83	8.66	*
Ahnak	9.47	1.64	888.6	47.24	6.52	*
Ptgis	2.34	0.61	850.46	58.21	8.52	*
Cxcl13	2.02	0.59	753.71	170.75	8.45	*
Serpinb2	0.42	0.2	735.95	110.57	10.4	*
Msr1	4.8	0.69	595.68	33.58	6.91	*
Microglia Sensome Genes Expression in Macrophages: Figure 3a-b						
Gene name	Microglia	SD mic	Macrophages	SD mac	Log2 Fold Difference	P-value *
P2ry12	3781.22153	326.7976	4.59994	0.84231	9.66	*
Tmem119	2753.65139	154.7322	12.08648	2.89043	7.84	*
Gpr34	1941.25889	154.8158	0.30624	0.13663	12.18	*
Csf1r	1634.12256	127.3727	337.64869	36.02073	2.27	*
Cd53	1516.55585	94.30559	694.47938	30.99505	1.13	*
Siglech	1501.56608	124.5712	0.10358	0.13088	13.72	*
Cx3cr1	1493.89763	87.69864	0.31728	0.18791	12.13	*
Selplg	1446.82688	180.2317	609.51334	48.2013	1.25	*
Ly86	1073.53467	95.10496	187.18005	22.08544	2.52	*
Fcgr3	1004.49566	140.0445	713.85426	71.56888	0.49	*
Fcer1g	837.22603	91.5999	416.14125	70.85151	1.01	*
Tyrobp	831.81833	79.03173	544.60018	65.16578	0.61	*
Slco2b1	725.06274	41.71548	0.08113	0.07573	13.34	*
Itgam	715.1316	70.03395	1918.49259	163.1004	-1.42	*
Tgfbr1	661.87659	111.803	20.27528	3.10444	5.03	*
Slc2a5	636.66974	57.71076	0.60191	0.29032	9.99	*
P2ry13	614.12845	70.25941	0.41807	0.19726	10.47	*
Ifngr1	610.46837	27.50385	100.45695	4.96574	2.6	*
Itgb5	592.76931	39.9607	0.73483	0.32688	9.59	*
Ccr5	568.59921	35.27909	68.11265	8.08345	3.06	*
Cd74	561.39507	138.8234	1134.61954	200.614	1.01	*
Emr1	495.03944	25.71118	1445.80143	176.5029	1.55	*
Cmtm6	451.56021	99.04759	82.58009	6.42645	2.45	*
Cd68	442.90079	90.94506	573.09707	90.44459	0.37	0.005
Trem2	442.09	30.7	5	1.06	6.48	*
Fcgr2b	410.55	10.62	316.52	43.76	0.38	0.003
Cd52	392.64	43.16	727.18	75.64	0.89	*
Itgb2	354.39	29.02	2081.23	177.78	-2.58	*
Gi24	351.84	47.19	168.9	19.65	1.06	*
Entpd1	291.66	18.28	58.45	5.22	2.32	*
Fcgr1	289.36	46.37	20.85	3.32	3.8	*
Cd180	248.03	33.78	94.78	15.45	1.39	*
Cmtm7	244.96	27.08	143.74	11.51	0.77	*
Lgals9	231.94	32.35	180.12	20.96	0.37	0.004

Microglia Sensome Genes Expression in Macrophages: Figure 3a-b (continued)						
Gene name	Microglia	SD mic	Macrophages	SD mac	Log2 Fold Difference	P-value *
Tgfbr2	223.96	34.43	85.17	5.39	1.39	*
Ecscr	223.88	15.07	0.11	0.09	10.65	*
Tmem173	212.87	29.99	15.48	1.97	3.78	*
Tlr2	195.84	14.42	95.25	12.67	1.04	*
Lag3	191.56	39.56	0.03	0.05	12.16	*
Ltf	189.98	15.34	0.05	0.06	11.73	*
P2ry6	189.12	15.26	8.22	0.83	4.52	*
Il10ra	187.15	3.3	59.36	7.37	1.66	*
Lair1	170.92	11.29	11.93	1.63	3.79	*
Gpr183	163.55	10.97	13.06	2.38	3.63	*
Tmem37	161.97	16.03	85.68	10.74	0.92	*
Cd37	158.79	21.69	222.03	22.59	-0.48	0.0004
Cd86	155.07	6.44	27.48	1.65	2.49	*
Slamf9	139.72	12.24	7.29	1.02	4.27	*
Tlr7	133.53	8.94	68.78	5.49	0.96	*
Cd14	128.14	14.64	115.88	12.75	0.14	0.25
Il6ra	112.16	10.66	54.49	7.8	1.04	*
Clec4a3	106.2	1.22	68.57	5.3	0.63	*
Ptprc	105.92	10.51	99.98	6.71	0.08	0.5
Clec5a	103.31	10.29	14.33	1.28	2.85	*
Havcr2	102.79	7.88	0.07	0.11	10.52	*
Upk1b	92.79	14.57	0.24	0.17	8.24	*
Adora3	92	5.96	1.31	0.44	6.13	*
Tnfrsf13b	91.9	9.67	35.23	3.08	1.38	*
Clec7a	90.46	13.78	187.07	38.49	-1.05	*
C3ar1	88.77	10.28	140.38	13.83	-0.66	*
Ptafr	86.33	10.6	25.47	4.72	1.76	*
Slc7a7	81.27	2.45	22.74	1.99	1.83	*
Gpr77	75.5	12.43	2.78	0.66	4.77	*
Cxcl16	73.65	9.26	48.95	4.26	0.58	*
C1orf162 homolog	65.38	4.75	19.1	3.46	1.78	*
Icam1	64.16	5.66	11.89	2.24	2.44	*
Icam4	64.12	5.7	11.82	2.25	2.44	*
Cmklr1	62.11	3.69	158.81	11.39	-1.35	*
Cd33	56.56	0.66	14.17	1.89	1.99	*
Cd48	54.03	3.1	38.08	2.92	0.5	0.0002
Clec4a2	50.24	3.01	5.07	0.64	3.27	*
Fcrl1	48.69	3.01	1.49	0.45	5.04	*
Gpr84	47.84	4.75	0.29	0.14	7.41	*
Tlr4	47.67	4.89	30.33	2.55	0.64	*
Il21r	46.72	7.41	2.22	0.5	4.38	*
Slc16a3	46.64	5.06	51.61	10.3	-0.15	0.31
Tnfrsf17	45.69	3.74	0.29	0.2	7.21	*
Ifitm6	34.99	0.76	331.84	17.89	-3.26	*
Lpar5	32.94	1.77	79.88	9.06	-1.27	*
Ccrl2	31.85	8.92	4.85	0.61	2.7	*
Gpr160	31.63	4.38	7.79	1.09	2	*
Tlr12	31.52	1.47	0.06	0.09	8.82	*
Clec4b1	30.61	0.68	3.4	0.55	3.17	*
Pilra	30.53	2.05	286.31	13.14	-3.24	*
Cysltr1	30.19	1.2	16.69	2.89	0.85	*
C5ar1	29.55	2.39	69.36	10.24	-1.24	*
Cd84	29.11	0.87	19.29	2.93	-0.02	0.93
Lilra5	28.54	2.4	0.77	0.19	5.22	*
Tnfrsf1b	27.07	1.45	16.46	2.02	0.73	*
Tlr1	26.25	2.36	6.29	0.93	2.06	*
Tlr6	22.71	0.53	14.03	1.71	0.69	*
Fcgr4	21.44	1.41	86.25	15.16	-1.97	*
Siglec5	20.49	1.1	0.33	0.13	5.88	*
Cd79b	20.32	1.44	39.31	4.8	-0.95	*
P2Y G	19.1	1.36	15.37	0.95	0.31	0.037
Tmem8c	14.7	2.05	0.02	0.06	9.05	*
Cd22	12.8	1.82	7.27	1.51	0.83	*
Csf2rb2	10.79	1.84	8.6	1.18	0.34	0.036
Tlr13	10.77	1.05	9.91	1.31	0.09	0.53
Cd101	10.72	0.76	0.14	0.1	6.27	*
Comparison of Gene Families in Microglia and Macrophages: Figure 3c-j						
PURINORECEPTORS: P2X AND P2Y FAMILIES						
Gene name	Microglia	SD mic	Macrophages	SD mac	Log2 Fold Difference	P-value
P2rX7	34.37	1.89	9.12	1.15	1.9	*
P2rX4	32.96	2.75	58.39	7.71	-0.83	*
P2rX1	4.14	0.96	14.56	1.62	-1.78	*
P2rX7b	2.86	0.34	0.31	0.18	3.22	*
P2rX6	0.49	0.29	0.07	0.09	2.96	*
P2rX3	0.15	0.02	0.11	0.09	0.32	0.75
P2rX5	0	0	0.04	0.06	-25.51	1
P2rX7d	0.1	0.08	0.06	0.07	1.07	0.38
P2rX2	0.1	0.14	0.03	0.07	0.91	0.64
P2ry12	3781.22	326.8	4.6	0.84	9.66	*
P2ry13	614.13	70.26	0.42	0.2	10.47	*
P2ry6	189.12	15.26	8.22	0.83	4.52	*
P2ry14	1.09	0.27	11.74	1.93	-3.42	*
P2ry10	0.67	0.03	1.98	0.36	-1.42	*
P2ry2	0.6	0.27	18.77	3.25	-5.08	*
P2ry1	0.31	0.19	3.88	0.91	-3.49	*
P2ry4	0.22	0.08	0.36	0.19	-0.52	0.34
CHEMOKINE RECEPTORS						
Ccr5	568.6	35.28	68.11	8.08	3.06	*
Ccr1	20.97	3.66	227.47	8.07	-3.45	*
Ccr2	6.85	0.96	33.81	5.75	-2.29	*

Comparison of Gene Families in Microglia and Macrophages: Figure 3c-j (continued)						
CHEMOKINE RECEPTORS (continued)						
Ccr3	1.38	0.29	0.84	0.35	0.7	0.048
Ccr4	0.23	0.12	0.04	0.05	1.97	0.015
Ccr6	0.91	0.36	0.43	0.22	1.12	0.003
Ccr7	0.12	0.09	0.67	0.34	-2.45	0.004
Ccr8	0	0	0.05	0.08	-1.1	1
Ccr9	0.07	0.08	0.3	0.25	-0.98	0.18
Ccr10	0.1	0.08	0.15	0.14	-0.26	1
Cx3cr1	1493.9	87.7	0.32	0.19	12.13	*
Cxcr4	12.3	0.07	4.77	2.21	1.34	*
Cxcr1	0.18	0.08	0.13	0.11	0.35	0.78
Cxcr2	3.21	1.51	0.16	0.16	4.33	*
Cxcr3	2.17	0.32	0.3	0.12	2.91	*
Cxcr5	0.19	0.16	3.09	0.74	-4	*
Cxcr6	0.28	0.13	0.16	0.15	0.6	0.31
Cxcr7	1.84	0.3	12.98	2.2	-2.77	*
Fc RECEPTORS						
Fcgr3	1004.5	140.04	713.85	71.57	0.49	*
Fcgr2b	410.55	10.62	316.52	43.76	0.38	0.003
Fcgr1	289.36	46.37	20.85	3.32	3.8	*
Fcgrt	44.55	2.85	62.88	5.42	-0.5	0.0004
Fcgr4	21.44	1.41	86.25	15.16	-1.97	*
Fcer1g	837.23	91.6	416.14	70.85	1.01	*
Fcer1a	0.67	0.24	0.59	0.26	0.3	0.48
Fcrl1	48.69	3.01	1.49	0.45	5.04	*
Fcrl6	0.22	0.09	0.32	0.18	-0.77	0.53
IFITMS						
Ifitm3	60.94	4.07	1218.97	101.42	-4.32	*
Ifitm6	34.99	0.76	331.84	17.89	-3.26	*
Ifitm2	10.53	1.17	291.94	34.17	-4.75	*
Ifitm1	5.04	0.37	0.62	0.27	2.93	*
Ifitm7	0.23	0.17	0.13	0.11	0.72	0.2
Ifitm5	0	0	0.14	0.21	-27.1	0.08
TOLL-LIKE RECEPTORS						
Tlr2	195.84	14.42	95.25	12.67	1.04	*
Tlr7	133.53	8.94	68.78	5.49	0.96	*
Tlr4	47.67	4.89	30.33	2.55	0.64	*
Tlr3	39.42	4.27	7.84	1.02	2.34	*
Tlr1	26.25	2.36	6.29	0.93	2.06	*
Tlr6	22.71	0.53	14.03	1.71	0.69	*
Tlr13	10.77	1.05	9.91	1.31	0.09	0.53
Tlr9	8.63	0.92	0.31	0.14	4.68	*
Tlr8	3.57	0.7	35.74	5.65	-3.35	*
Tlr11	0.2	0.16	0.3	0.14	-0.45	0.52
Tlr12	31.52	1.47	0.06	0.09	8.82	*
Tlr5	5.04	0.79	0.3	0.21	4.18	*
SIGLECS						
Siglech	1501.57	124.57	0.1	0.13	13.72	*
Siglece	17.11	1.18	3.6	0.75	2.27	*
Siglecg	1.82	0.1	2.27	0.48	-0.28	0.33
Siglec3/ CD33	56.56	0.66	14.17	1.89	1.99	*
Siglec5	20.49	1.1	0.33	0.13	5.88	*
Siglec1	1.14	0.24	4.97	0.59	-2.17	*
Siglec15	0	0	0.01	0.02	-23.93	1

*Unless otherwise indicated, all p values for comparison between microglia vs macrophages for the above transcripts were $<10^{-5}$ by EdgeR analysis.

Supplementary Table 3: Young vs Old Microglia						
Alternative Priming Genes Old/Young Microglia:Figure 7a						
Gene names	Mean Young Microglia	STDV Young	Mean Old Microglia	STDV Old	log FC	p-value*
Clec7a	90.46	13.78	363.73	29.41	2.01	*
Chi3l3	70.74	16.63	329.5	43.13	2.22	*
Spp1	9.08	1.37	194.04	11.29	4.39	*
Lgals3	21.22	3.03	115.04	7.74	2.44	*
Cd302	186.16	9.83	103.29	6.63	-0.85	*
F13a1	24.92	3.73	102.2	46.24	2.04	*
Fgl2	28.74	1.52	69.48	7.2	1.27	*
Cxcr4	12.3	0.07	61.84	4.48	2.32	*
Mrc1	43.29	5.61	58.68	20.17	0.45	0.012
Lta4h	33.61	2.51	46.84	4.17	0.48	0.008
Ccl8	9.81	1.82	39.94	30.42	2.03	*
Cxcl2	10.97	0.83	39.6	11.53	1.83	*
Il21r	46.72	7.41	37.77	1.65	-0.3	0.01
Il10	27.72	1.26	31.13	1.59	0.15	0.36
Tgfbi	12.78	0.65	24.65	1.28	0.93	*
Tlr1	26.25	2.36	22.42	1.75	-0.23	0.23
Msr1	4.8	0.69	13.77	9.2	1.53	*
Cd163	3.7	0.54	13.61	8.78	1.86	*
Car2	10.02	2.01	13.56	1.49	0.4	0.06
Tgfb1	27.26	5.61	13.06	1.61	-1.07	*
Egr2	4.11	2.25	11.51	2.38	1.45	*
Mmp12	1.33	0.2	10.18	0.81	2.95	*
Marco	0.09	0.06	8.09	11.43	6.25	*
Retnla	2.15	1.06	7.94	2.98	2.18	*
Tlr8	3.57	0.7	7.7	1.7	1.17	*
Arg1	0.35	0.04	6.6	9.27	3.87	*
Gas7	0.81	0.16	6.41	1.91	2.95	*
Il1rn	0.99	0.3	6.4	0.98	2.7	*
Alox15	0.56	0.22	6.22	5.41	3.28	*
Adk	4.56	0.29	5.82	0.7	0.39	0.14
Igf1	1.59	0.36	3.3	0.5	0.97	0.005
Cxcl1	0.47	0.07	0.89	0.49	0.98	0.1
Cxcl3	0.26	0.06	0.49	0.38	0.61	0.5
Cd209e	0.24	0.09	0.45	0.18	0.97	0.31
Ccl26	0.09	0.13	0.4	0.34	1.79	0.12
Ccl17	0.59	0.25	0.39	0.31	-0.33	0.52
Ccl20	0.05	0.07	0.23	0.18	3.1	0.07
Classical Priming Genes Old/Young Microglia: Figure 7b						
Tnf	16.61	4.91	104.96	56.42	2.63	*
Bcl2a1a	101.09	9.38	99.63	8	-0.03	0.88
Cxcl10	8.37	1.62	35.98	12.62	2.06	*
Xiap	40.42	9.81	33.11	5.91	-0.28	0.13
Nampt	19.64	1.61	26.77	2.72	0.46	0.017
Tymp	31.28	5.45	19.15	1.41	-0.7	0.0003
Birc3	12.18	1.63	17.56	1.15	0.55	0.008
Il15	17.92	1.39	12.15	0.94	-0.55	0.008
Gadd45gip1	41.12	7.04	23.29	1.81	-0.82	*
Cxcl9	3.93	1.03	7.81	4.3	1.05	0.00009
Tnfsf10	4.73	1.03	5.87	0.45	0.29	0.28
Il6	5.34	0.63	4.49	2.54	-0.31	0.31
Pycard	355.48	16.52	182.13	4.75	-0.96	*
Naip5	5.44	0.57	8.25	2.06	0.66	0.008
Nlrp1b	0.6	0.28	0.33	0.23	-0.82	0.37
Nlrp1a	0.11	0.14	0.06	0.03	1.76	0.19
Nlrp3	24.18	7.6	18.38	3.94	-0.4	0.04
Casp1	11.49	1.66	11.1	2.28	-0.01	0.98
Aim2	31.7	0.49	30.43	1.89	-0.06	0.75
Nlrc4	0.49	0.1	0.74	0.28	0.88	0.14
Ifnγ	0.19	0.17	0.21	0.03	-0.44	1
Il12a	0.14	0.11	0.24	0.13	1.19	0.73
Il12b	0.18	0.13	0.59	0.08	1.36	0.084
Il18	31.4	1.21	20.36	0.67	-0.63	0.0011
Il1b	17.72	2.36	51.61	15.19	1.49	*
Il33	0.92	0.25	0.93	0.39	-0.15	0.88
Irak1	24.25	1.26	25.28	1.99	0.07	0.71
Irf1	21.5	0.29	22.03	0.87	0.04	0.84
Myd88	37.99	2.46	33.13	2.23	-0.2	0.28
Panx1	7.1	1.04	6.9	0.29	-0.04	0.93
Ptgs2	6.35	2.53	41.86	17.22	2.67	*
Stk30	0.32	0.13	0.61	0.59	0.62	0.35
Ripk2	13.19	0.94	18.15	3.02	0.47	0.025
Txnip	227.06	44.09	168.45	16.23	-0.42	0.012
Microglial Sensome Old vs Young: Figure 8a						
Ecscr	223.88	15.07	89.42	10.83	-1.32	*
Trem2	442.09	30.7	183.71	8.62	-1.26	*
Tnfrsf17	45.69	3.74	22.56	1.48	-1.02	*
Tmem37	161.97	16.03	82.1	3.56	-0.98	*
Gpr34	1941.26	154.82	1092.41	6.89	-0.83	*
P2ry12	3781.22	326.8	2131.2	76.38	-0.83	*
P2ry13	614.13	70.26	346.84	7.74	-0.82	*
Gpr183	163.55	10.97	96.99	5.41	-0.75	*
Fcrl1	48.69	3.01	29.67	3.47	-0.71	0.00009
Tyrobp	831.82	79.03	521.65	16.63	-0.67	0.00005
Cmtm7	244.96	27.08	155.56	7.68	-0.65	0.0001
Cd79b	20.32	1.44	13.05	1.48	-0.65	0.002
Adora3	92	5.96	59.66	4.39	-0.62	0.0004
Ifngr1	610.47	27.5	403.69	15.87	-0.6	0.0003
Cxcl16	73.65	9.26	49.12	3.23	-0.59	0.0009
Fcgr1	289.36	46.37	192.82	8.46	-0.59	0.0005
Ccr5	568.6	35.28	382.15	6.4	-0.57	0.0006
Slc2a5	636.67	57.71	428.4	22.17	-0.57	0.0006

Microglial Sensome Old vs Young: Figure 8a (continued)						
Gene names	Mean Young Microglia	STDV Young	Mean Old Microglia	STDV Old	log FC	p-value*
P2Y G-protein coupled	19.1	1.36	12.76	1.64	-0.56	0.006
Cd53	1516.56	94.31	1061.66	20.28	-0.51	0.002
Siglech	1501.57	124.57	1067.68	51.79	-0.49	0.003
Cd86	155.07	6.44	110.81	3.1	-0.48	0.005
Emr1	495.04	25.71	355.93	15.23	-0.47	0.004
Slco2b1	725.06	41.72	522.58	13.27	-0.47	0.004
Fcgr3	1004.5	140.04	730.62	21.87	-0.46	0.005
Tlr6	22.71	0.53	17.02	1.86	-0.43	0.034
Ptafr	86.33	10.6	66.03	3.11	-0.39	0.026
Gpr160	31.63	4.38	24.28	3.42	-0.37	0.047
Cysltr1	30.19	1.2	23.08	2.35	-0.37	0.049
Lilra5	28.54	2.4	22.54	1.9	-0.35	0.071
Tmem173	212.87	29.99	166.94	4.35	-0.34	0.043
C1orf162 homolog	65.38	4.75	51.62	4.58	-0.33	0.057
Lag3	191.56	39.56	153.72	27	-0.32	0.057
Cmtm6	451.56	99.05	365.66	21.6	-0.3	0.067
Tmem119	2753.65	154.73	2239.9	98.02	-0.3	0.071
Gpr77	75.5	12.43	61.38	8.09	-0.3	0.088
Il21r	46.72	7.41	37.77	1.65	-0.3	0.098
Lair1	170.92	11.29	137.88	3.92	-0.29	0.084
Tnfrsf1b	27.07	1.45	22.22	1.23	-0.28	0.144
Clec4a2	50.24	3.01	40.38	1.27	-0.27	0.11
Itgam	715.13	70.03	595.78	56.33	-0.26	0.11
Ly86	1073.53	95.1	898.04	18.31	-0.26	0.12
Tlr4	47.67	4.89	40.42	4.91	-0.23	0.19
Cd48	54.03	3.1	45.87	5.78	-0.23	0.19
Clec4b1	30.61	0.68	26.09	1.27	-0.23	0.19
Tgfbr1	661.88	111.8	565.47	39.51	-0.23	0.17
Tlr1	26.25	2.36	22.42	1.75	-0.23	0.23
Slc7a7	81.27	2.45	71.16	5.01	-0.19	0.28
Itgb5	592.77	39.96	523.64	14.61	-0.18	0.28
Csf1r	1634.12	127.37	1446.93	91.48	-0.18	0.29
Fcer1g	837.23	91.6	760.22	70.34	-0.14	0.41
Cd14	128.14	14.64	116.5	13.22	-0.14	0.42
Cd33	56.56	0.66	51.74	2.18	-0.12	0.5
Il10ra	187.15	3.3	172.08	13.76	-0.12	0.48
Cd180	248.03	33.78	230.59	22.44	-0.11	0.53
Entpd1	291.66	18.28	272.73	13.65	-0.1	0.567
Il6ra	112.16	10.66	105.93	12.93	-0.08	0.63
Cd101	10.72	0.76	10.14	0.55	-0.08	0.718
Upk1b	92.79	14.57	89.77	2.58	-0.05	0.8
Clec5a	103.31	10.29	100.24	8.13	-0.04	0.81
Gi24 isoform 2	351.84	47.19	347.28	18.27	-0.02	0.91
Cmklr1	62.11	3.69	61.36	4.92	-0.02	0.94
Gpr84	47.84	4.75	47.51	8.66	-0.01	0.96
Tlr7	133.53	8.94	133.56	1.86	0	1
Cd84	29.11	0.87	24.79	0.51	0.01	0.96
Icam4	64.12	5.7	65.31	6.93	0.03	0.89
Tgfbr2	223.96	34.43	228.01	23.78	0.03	0.88
Icam1	64.16	5.66	65.42	7	0.03	0.87
Selplg	1446.83	180.23	1478.04	78.83	0.03	0.85
Havcr2	102.79	7.88	106.77	6.17	0.05	0.76
Cd68	442.9	90.95	466.69	48.59	0.08	0.65
Lgals9	231.94	32.35	244.76	14.56	0.08	0.64
Cd37	158.79	21.69	168.23	13.09	0.08	0.63
Fcgr2b	410.55	10.62	434.09	34.62	0.08	0.62
Tlr13	10.77	1.05	11.57	1.35	0.09	0.69
Clec4a3	106.2	1.22	113.44	10.64	0.1	0.56
Tnfrsf13b	91.9	9.67	98.31	9.99	0.1	0.56
Cx3cr1	1493.9	87.7	1608.4	29.84	0.11	0.52
Slamf9	139.72	12.24	152.01	3.23	0.12	0.48
Itgb2	354.39	29.02	389.14	19.08	0.14	0.38
P2ry6	189.12	15.26	213.22	11.53	0.18	0.29
Lpar5	32.94	1.77	36.96	2.83	0.18	0.32
Tlr12	31.52	1.47	37.52	3.21	0.25	0.18
Csf2rb2	10.79	1.84	13.28	2.44	0.29	0.17
Siglec5	20.49	1.1	25.79	1.25	0.32	0.09
Ptprc	105.92	10.51	132.54	16.5	0.33	0.06
Tmem8c	14.7	2.05	19.8	1.02	0.42	0.03
C3ar1	88.77	10.28	121.97	12.74	0.46	0.007
Slc16a3	46.64	5.06	68.51	8.57	0.56	0.0016
Tlr2	195.84	14.42	291.48	6.63	0.57	0.0006
Pilra	30.53	2.05	49.1	6.35	0.7	0.0001
Fcgr4	21.44	1.41	40.61	5.49	0.91	*
Cd74	561.4	138.82	1154.89	275.43	1.04	*
C5ar1	29.55	2.39	63.28	5.48	1.1	*
Cd52	392.64	43.16	893.87	26.99	1.19	*
Cd22	12.8	1.82	31.79	0.99	1.3	*
Ccrl2	31.85	8.92	80.07	24.86	1.32	*
Clec7a	90.46	13.78	363.73	29.41	2.01	*
Ltf	189.98	15.34	983.46	46.61	2.37	*
Ifitm6	34.99	0.76	213.75	20.48	2.61	*

Comparison of Gene Families in Microglia Oldvs Young:: Figure 8b-i						
Gene names	Mean Young Microglia	STDV Young	Mean Old Microglia	STDV Old	log FC	p-value*
PURINORECEPTORS: P2X AND P2Y FAMILIES						
P2rX7	0.473185	34.37	25.17	1.04	-0.44	0.02
P2rX4	0.687457	32.96	43.12	1.69	0.41	0.03
P2rX1	0.238864	4.14	2.64	0.71	-0.69	0.04
P2rX7b	0.083878	2.86	1.68	0	-0.83	0.03
P2rX6	0.0735167	0.49	0.89	0.24	0.69	0.19
P2rX3	0.00502543	0.15	0.22	0.15	0.78	0.73
P2rX5	0	0	0.19	0.14	27.77	0.13
P2rX7d	0.0190876	0.1	0.03	0.04	-0.8	1
P2rX2	0.0345156	0.1	0.07	0.1	-0.23	1
P2ry12	3781.22	326.8	2131.2	76.38	-0.83	*
P2ry13	614.13	70.26	346.84	7.74	-0.82	*
P2ry6	189.12	15.26	213.22	11.53	0.18	0.3
P2ry14	1.09	0.27	1.65	0.62	0.61	0.2
P2ry10	0.67	0.03	2.13	0.17	1.53	0
P2ry2	0.6	0.27	1.29	0.52	1.34	0.02
P2ry1	0.31	0.19	1.08	0.26	1.77	0.01
P2ry4	0.22	0.08	0.35	0.11	0.96	0.31
CHEMOKINE RECEPTORS						
Ccr5	568.6	35.28	382.15	6.4	-0.57	0.0006
Ccr1	20.97	3.66	37.51	5.37	0.86	*
Ccr2	6.85	0.96	43.14	1.7	2.65	*
Ccr3	1.38	0.29	2.12	1.02	0.75	0.09
Ccr4	0.23	0.12	0.22	0.04	-0.02	1
Ccr6	0.91	0.36	0.82	0.3	-0.21	0.78
Ccr7	0.12	0.09	0.71	0.51	2.64	0.02
Ccr8	0	0	0.14	0.1	2.36	1
Ccr9	0.07	0.08	0.13	0.09	-0.22	1
Ccr10	0.1	0.08	0	0	-27	0.25
Cx3cr1	1493.9	87.7	1608.4	29.84	0.11	0.52
Cxcr4	12.3	0.07	61.84	4.48	2.32	*
Cxcr1	0.18	0.08	0.22	0.17	0.04	1
Cxcr2	3.21	1.51	14.48	3.81	2.23	*
Cxcr3	2.17	0.32	1.61	0.57	-0.45	0.3
Cxcr5	0.19	0.16	0.19	0.14	0.03	1
Cxcr6	0.28	0.13	0.49	0.17	0.78	0.31
Cxcr7	1.84	0.3	1.61	0.64	-0.24	0.66
Fc RECEPTORS						
Fcgr3	1004.5	140.04	730.62	21.87	-0.46	0.01
Fcgr2b	410.55	10.62	434.09	34.62	0.08	0.62
Fcgr1	289.36	46.37	192.82	8.46	-0.59	0.0005
Fcgrt	44.55	2.85	37.76	2.67	-0.23	0.2
Fcgr4	21.44	1.41	40.61	5.49	0.91	*
Fcer1g	837.23	91.6	760.22	70.34	-0.14	0.41
Fcer1a	0.67	0.24	3.36	1.59	2.14	*
Fcrl1	48.69	3.01	29.67	3.47	-0.71	0.0001
Fcrl6	0.22	0.09	0.12	0.1	0.03	1
IFITMS						
Ifitm1	5.04	0.37	19.35	5.75	1.91	*
Ifitm2	10.53	1.17	41.64	5.59	1.93	*
Ifitm3	60.94	4.07	242.05	6.06	1.99	*
Ifitm5	0	0	0.18	0.15	27.78	0.13
Ifitm6	34.99	0.76	213.75	20.48	2.61	*
Ifitm7	0.23	0.17	0.57	0.21	1.28	0.18
TOLL-LIKE RECEPTORS						
Tlr2	195.84	14.42	291.48	6.63	0.57	0.0006
Tlr7	133.53	8.94	133.56	1.86	0	1
Tlr4	47.67	4.89	40.42	4.91	-0.23	0.19
Tlr3	39.42	4.27	59.18	2.6	0.58	0.001
Tlr1	26.25	2.36	22.42	1.75	-0.23	0.23
Tlr6	22.71	0.53	17.02	1.86	-0.43	0.03
Tlr13	10.77	1.05	11.57	1.35	0.09	0.69
Tlr9	8.63	0.92	10.44	0.45	0.28	0.22
Tlr8	3.57	0.7	7.7	1.7	1.17	*
Tlr11	0.2	0.16	0.24	0.21	0.19	1
Tlr12	31.52	1.47	37.52	3.21	0.25	0.18
Tlr5	5.04	0.79	5.86	0.88	0.21	0.39
SIGLECS						
Siglech	1501.57	124.57	1067.68	51.794	-0.49	0.003
Siglece	17.11	1.18	17.9946	1.9121	0.08	0.7
Siglecg	1.82	0.1	1.29965	0.57227	-0.5	0.26
Siglec3/ CD33	56.56	0.66	51.7396	2.17884	-0.12	0.5
Siglec5	20.49	1.1	25.78568	1.24789	0.32	0.09
Siglec1	1.14	0.24	5.09596	2.74354	2.25	*
Siglec15	0	0	0.11	0.16	0.42	1
Scavenger Receptors						
Msr1	4.8	0.69	7.31	1.83	0.61	0.12
Msr1v2	0.97	0.49	0.98	0.76	-0.04	1
Scara3	0.34	0.15	1.95	1.96	2.62	*
Scara5	0.36	0.12	0.96	0.4	1.59	0.012
Marco	0.09	0.06	8.09	11.43	6.25	*
Cd163	3.7	0.54	13.61	8.78	1.86	*
Cd36	10.11	2.02	12.68	2.31	0.15101728	0.15
Scarb1	9.42	0.99	9.59	0.37	1	1
Lrp1	196.48	24.24	152.73	11.8	-0.37	0.03
Lrp10	55.16	6.81	65.36	4.24	0.24	0.17
Lrp6	5.35	1.31	2.83	0.87	-0.9	0
Lrp12	12.04	2.85	11.43	1.53	-0.04	0.81
Lrp5	5.86	0.4	4.54	0.25	-0.39	0.16
Lrp11	2	0.4	2.12	0.59	0.25	0.48
Lrp4	2.78	0.37	2.24	0.46	-0.31	0.36
Lrp8	0.3	0.1	0.6	0.45	0.95	0.25

Comparison of Gene Families in Microglia Oldvs Young:: Figure 8b-l (continued)						
Gene names	Mean Young Microglia	STDV Young	Mean Old Microglia	STDV Old	log FC	p-value*
Scavenger Receptors (continued)						
Lrp2	0.21	0.06	0.69	0.7	1.37	0.08
Scarf1	0.96	0.5	1.2	0.82	0.41	0.58
Scarf2	9.31	0.94	8.1	0.18	-0.18	0.45
Cd68	442.9	90.95	466.69	48.59	0.08	0.65
Cd14	128.14	14.64	116.5	13.22	-0.14	0.42
Cd47	71.73	0.98	75.34	6.74	0.08	0.66
Cxcl16	73.65	9.26	105.13	6.39	0.52	0.002
Fpr2	7.3	0.78	39.81	3.61	2.44	*
Srcrb4	0.53	0.19	0.63	0.45	0.39	0.69
Olr1	0.61	0.35	3.44	0.79	2.51	*
Ager	0.07	0.1	0	0	-26.99	0.25

*Unless otherwise indicated, all p values for comparison of young vs old microglia for the above transcripts are $<10^{-5}$ by EdgeR analysis