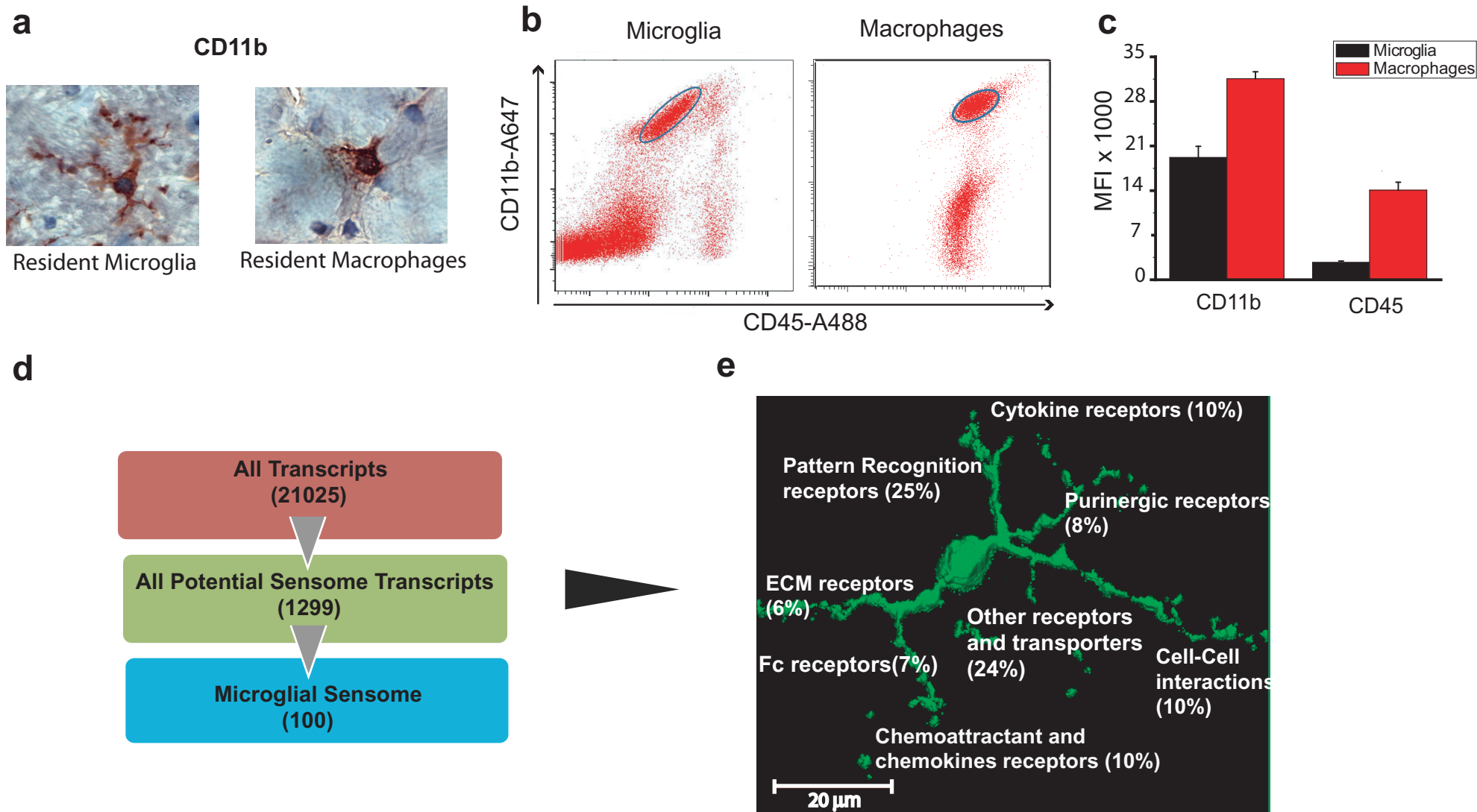


The Microglial Sensome Revealed by Direct RNA Sequencing

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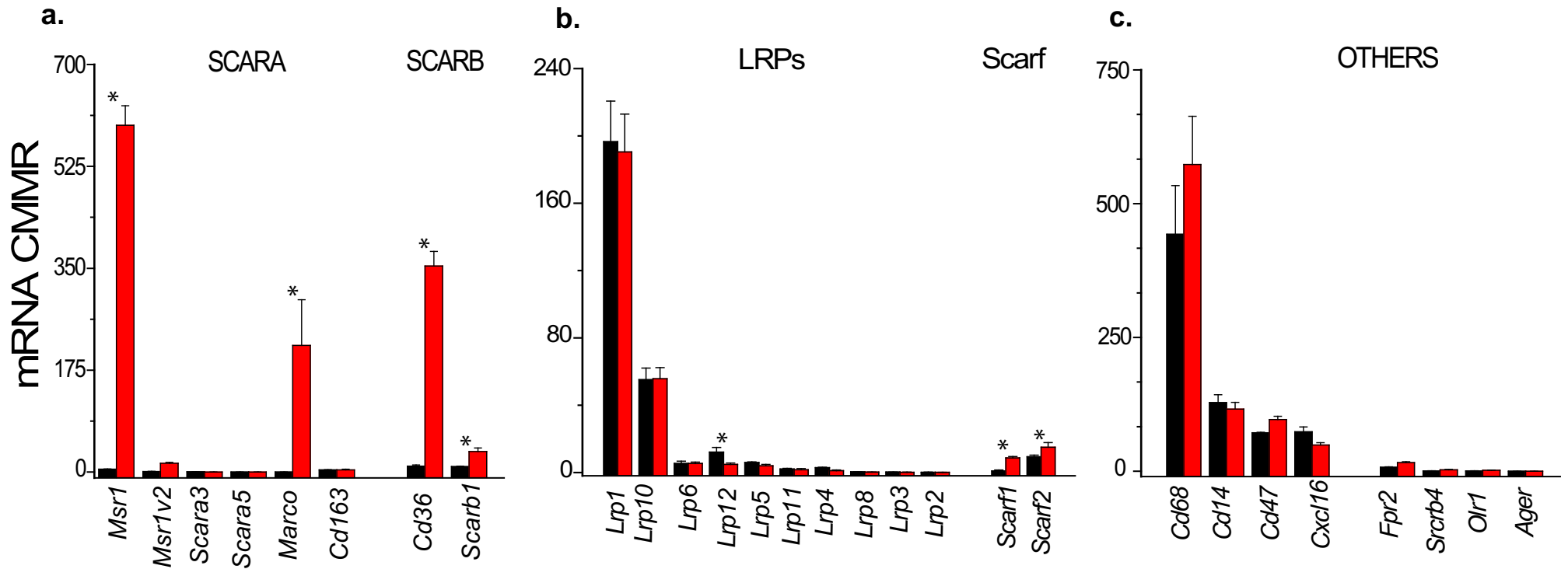
Supplementary Material



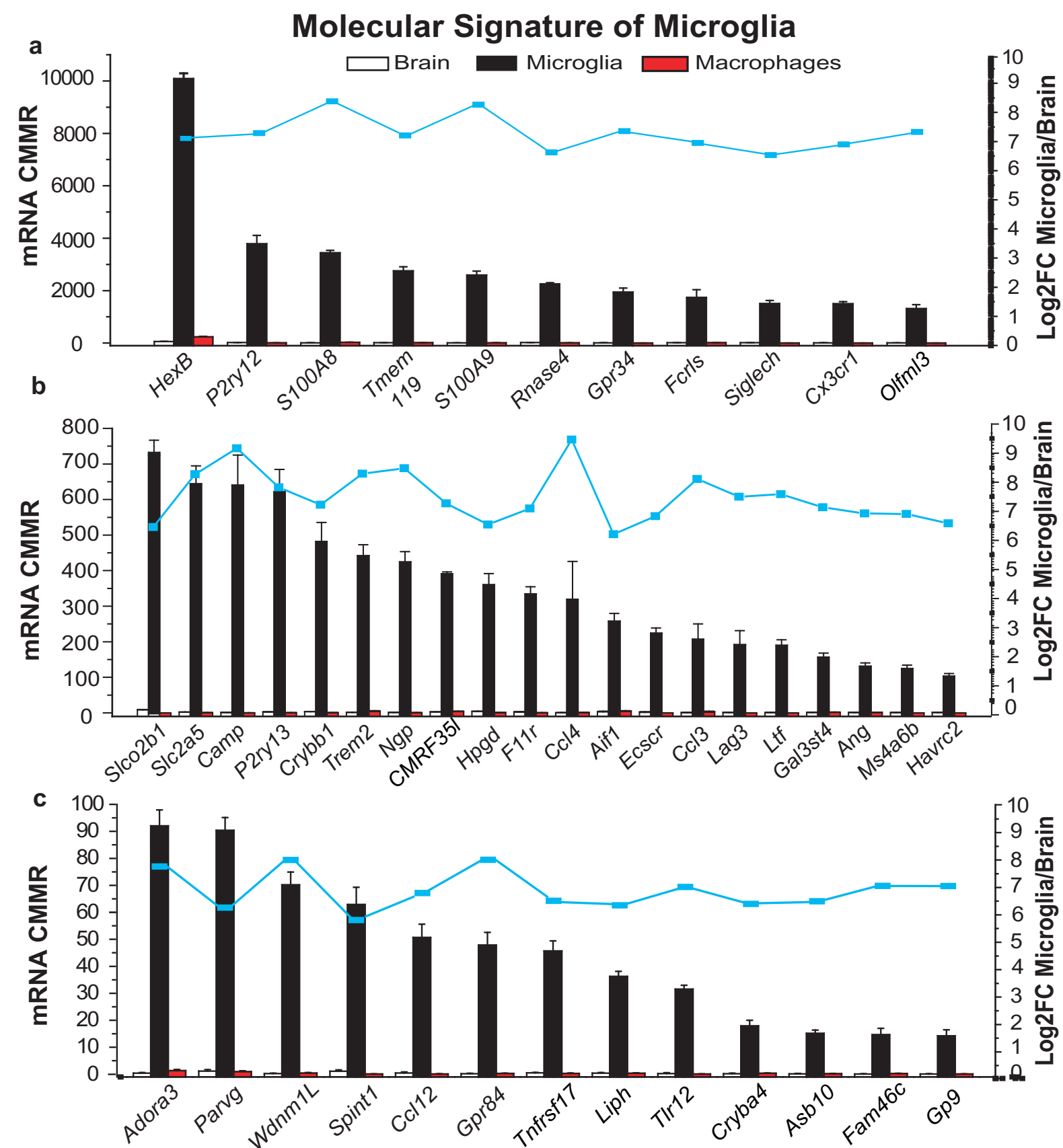
Supplementary Figure 1: Overview of cell characterization and experimental flow. **a-b.** Resident microglia and macrophages express CD11b *in situ* and by flow cytometry. Brain and peritoneal sections were stained with anti-CD11b antibodies (red-brown stain) and counterstained with hematoxylin. Microglia 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.

SCAVENGER RECEPTORS

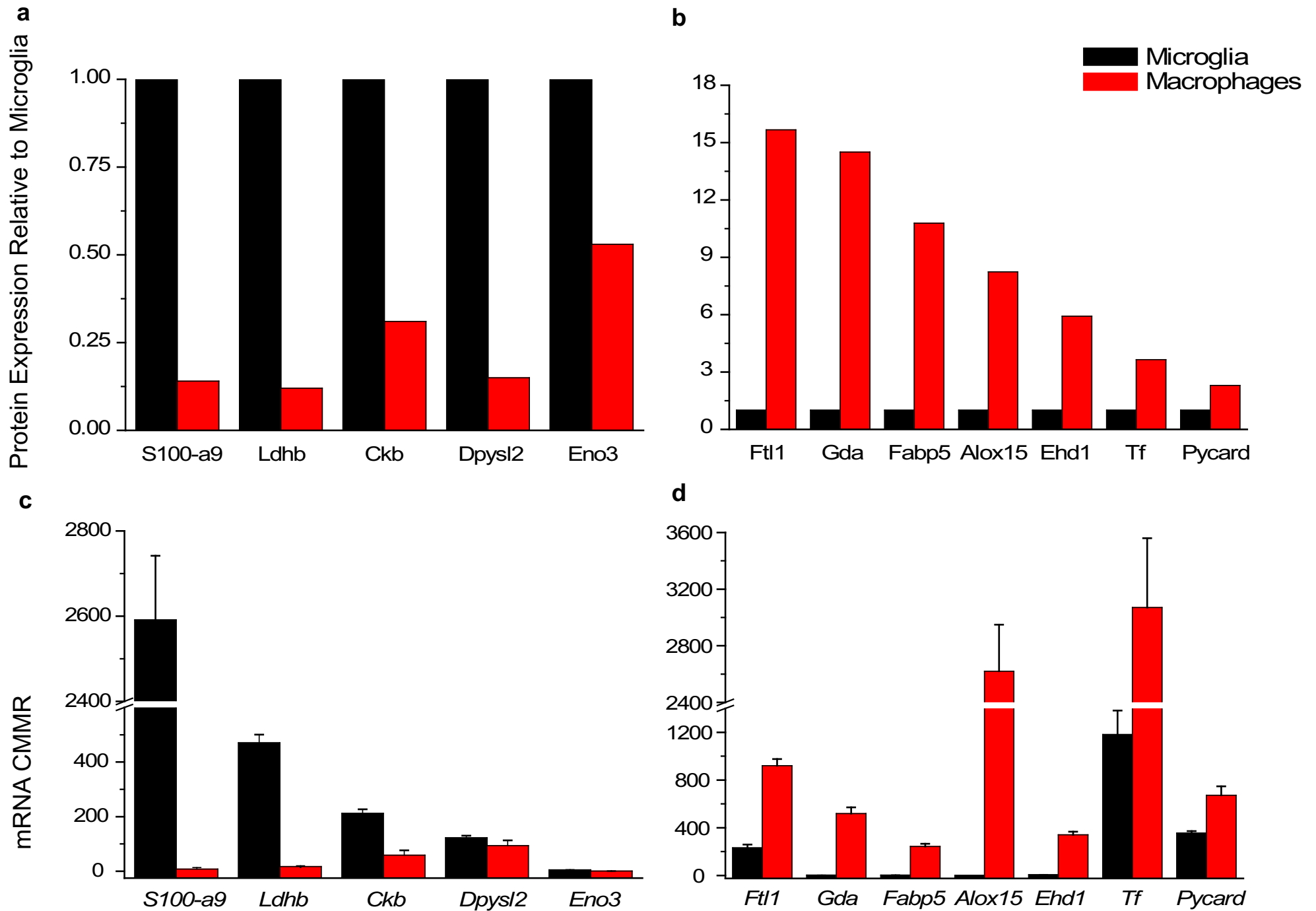
■ Microglia
■ Macrophages



Supplementary 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 macrophages 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.



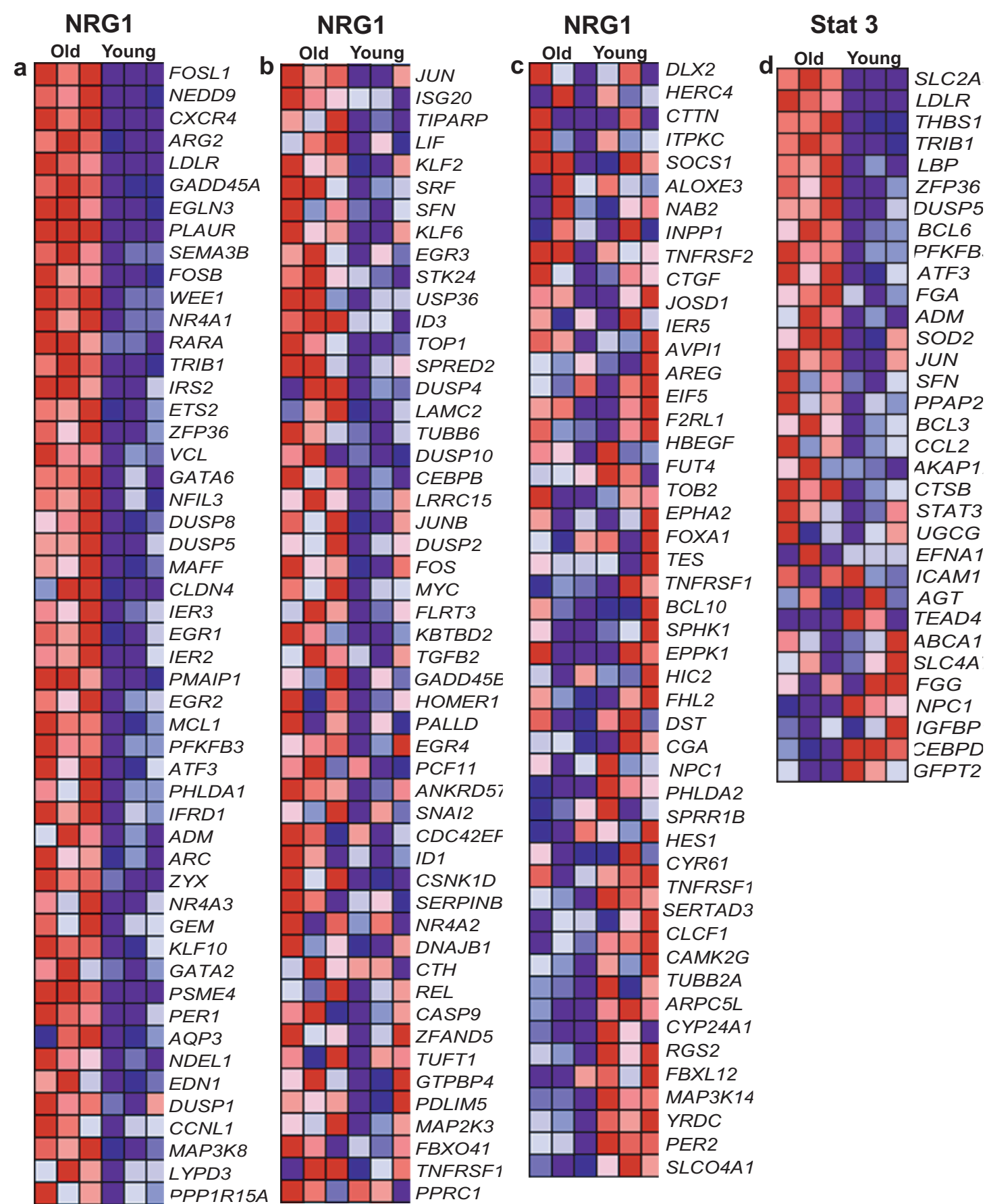
Supplementary Figure. 3: Molecular signature of microglia. Microglia signature genes compared to brain and macrophages. Data expressed as mRNA CMMR (copies per million mapped reads) as determined by DRS (left y-axis). 3a presents only transcripts expressed at >1000 CMMR, 3b presents transcripts expressed 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.



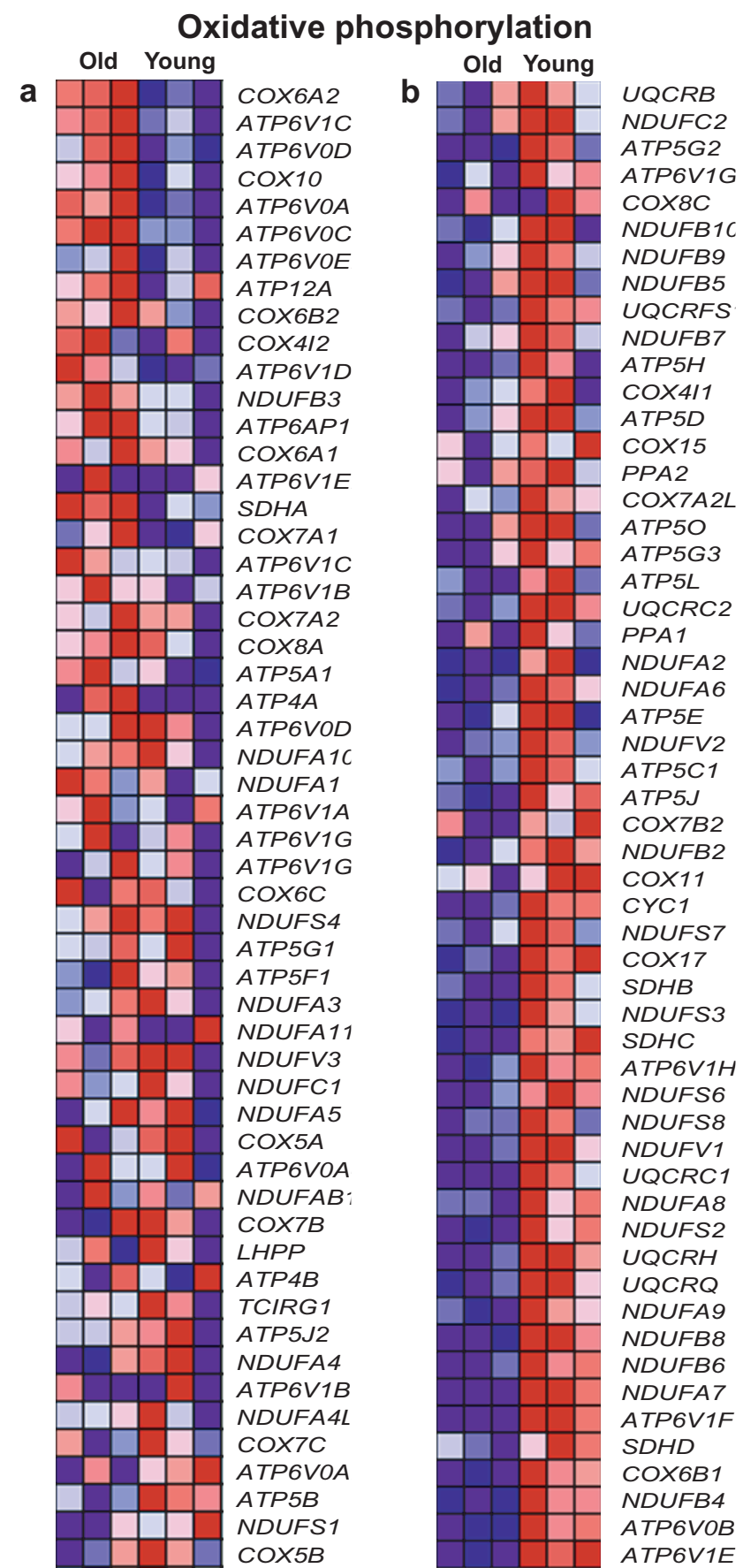
Supplementary Figure 4: Comparison of expression of proteins identified by 2D DIGE with mRNA levels in microglia and macrophages.

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 | <i>P2ry12</i> = P2Y purinoceptor 12 | 20.26 | 1.47 | 3781.22 | 326.80 | 186.63 | Nucleotides |
| NM_028808 | <i>P2ry13</i> = P2Y purinoceptor 13 | 2.99 | 0.48 | 614.13 | 70.26 | 205.67 | Nucleotides-ADP |
| NM_183168 | <i>P2ry6</i> = P2Y purinoceptor 6 | 1.81 | 0.52 | 189.12 | 15.26 | 104.71 | Nucleotides-UDP |
| NM_011823 | <i>Gpr34</i> = probable G-protein coupled receptor 34 | 9.91 | 1.03 | 1941.26 | 154.82 | 195.81 | Nucleotides also Lysophosphatidylserine |
| NM_001174169 | <i>Adora3</i> = adenosine receptor A3 | 0.41 | 0.21 | 92.00 | 5.96 | 222.02 | Adenosine |
| NM_009848 | <i>Entpd1</i> = ectonucleoside triphosphate diphosphohydrolase | 4.28 | 0.61 | 291.66 | 18.28 | 68.15 | Nucleotides-ATP |
| NM_028261 | <i>Tmem173</i> = 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 | <i>Csf1r</i> = macrophage colony-stimulating factor 1 receptor | 12.54 | 1.21 | 1634.12 | 127.37 | 130.33 | m-CSF, IL-34 |
| NM_007782 | <i>Csf3r</i> = granulocyte colony-stimulating factor receptor | 2.28 | 0.15 | 81.27 | 3.22 | 35.65 | g-CSF |
| NM_009370 | <i>Tgfbr1</i> = TGF-beta receptor type-1 | 8.01 | 0.46 | 661.88 | 111.80 | 82.61 | Tgf-β |
| NM_009371 | <i>Tgfbr2</i> = TGF-beta receptor type-2 | 5.62 | 0.34 | 223.96 | 34.43 | 39.87 | Tgf-β |
| NM_010511 | <i>Ifngr1</i> = 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 | <i>Il10ra</i> = interleukin-10 receptor subunit alpha | 1.85 | 0.69 | 187.15 | 3.30 | 101.12 | IL-10 |
| NM_010559 | <i>Il6ra</i> = interleukin-6 receptor subunit alpha precursor | 1.82 | 0.27 | 112.16 | 10.66 | 61.47 | IL-6 |
| NM_021887 | <i>Il21r</i> = interleukin-21 receptor | 0.27 | 0.02 | 46.72 | 7.41 | 175.43 | IL-21 |
| NM_011608 | <i>Tnfrsf17</i> = tumor necrosis factor receptor superfamily | 0.49 | 0.19 | 45.69 | 3.74 | 92.71 | BAFF |
| NM_011610 | <i>Tnfrsf1b</i> = tumor necrosis factor receptor superfamily | 0.35 | 0.28 | 27.07 | 1.45 | 76.49 | TNF |
| Chemokine and related receptors | | | | | | | |
| NM_009987 | <i>Cx3cr1</i> = CX3C chemokine receptor 1 | 10.48 | 1.33 | 1493.90 | 87.70 | 142.56 | cx3cl1 |
| NM_009917 | <i>Ccr5</i> = C-C chemokine receptor type 5 | 2.99 | 0.43 | 568.60 | 35.28 | 189.82 | Ccl3, Ccl4, Ccl8, RANTES |
| NM_009779 | <i>C3ar1</i> = C3a anaphylatoxin chemotactic receptor | 0.90 | 0.33 | 88.77 | 10.28 | 98.69 | C3a |
| NM_001081211 | <i>Ptafr</i> = platelet-activating factor receptor | 0.74 | 0.23 | 86.33 | 10.60 | 116.87 | PAF |
| NM_001146005 | <i>Gpr77</i> = C5a anaphylatoxin chemotactic receptor C5L2 | 0.59 | 0.25 | 75.50 | 12.43 | 128.48 | C5a |
| NM_008153 | <i>Cmklr1</i> = chemokine-like receptor 1 | 0.77 | 0.34 | 62.11 | 3.69 | 80.48 | The chemokine chemerin |
| NM_021476 | <i>Cysltr1</i> = 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 | <i>Ccr12</i> = C-C chemokine receptor-like 2 | 0.63 | 0.34 | 31.85 | 8.92 | 50.51 | Chemerin |
| NM_026036 | <i>Cmtm6</i> = CKLF-like MARVEL transmembrane domain-containing | 10.44 | 0.91 | 451.56 | 99.05 | 43.27 | May bind cxcl7 |
| NM_007577 | <i>C5ar1</i> = C5a anaphylatoxin chemotactic receptor | 0.73 | 0.24 | 29.55 | 2.39 | 40.37 | AKA CD88 C5a Staph. Aureus |
| Fc receptors | | | | | | | |
| NM_010188 | <i>Fcgr3</i> = low affinity immunoglobulin gamma Fc region | 3.44 | 0.88 | 1004.50 | 140.04 | 292.13 | Fc portion of IgG |
| NM_010185 | <i>Fcer1g</i> = high affinity immunoglobulin epsilon receptor | 3.48 | 0.58 | 837.23 | 91.60 | 240.28 | Fc portion of IgE |
| NM_010187 | <i>Fcgr2b</i> = low affinity immunoglobulin gamma Fc region | 3.65 | 1.05 | 410.55 | 10.62 | 112.60 | Fc portion of IgG-Low affinity |
| NM_010186 | <i>Fcgr1</i> = 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 | <i>Cmtm7</i> = CKLF-like MARVEL transmembrane domain | 2.39 | 1.12 | 244.96 | 27.08 | 102.44 | IgM ? |
| NM_178165 | <i>Fcrl1</i> = Fc receptor-like protein 1 | 0.40 | 0.39 | 48.69 | 3.01 | 120.57 | IgG? |
| NM_144559 | <i>Fcgr4</i> =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 | <i>Selplg</i> = 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 | <i>Ly86</i> = lymphocyte antigen 86 precursor | 6.01 | 1.82 | 1073.54 | 95.10 | 178.66 | AKA MD1 LPS |
| NM_009853 | <i>Cd68</i> = macroscialin | 5.61 | 0.91 | 442.90 | 90.95 | 78.94 | Ox LDL, SR |
| NM_031254 | <i>Trem2</i> = triggering receptor expressed on myeloid cells 2 | 1.55 | 0.26 | 442.09 | 30.70 | 284.64 | Apoptotic neurons |
| NM_008533 | <i>Cd180</i> = CD180 antigen | 1.06 | 0.61 | 248.03 | 33.78 | 234.41 | LPS AKA rp105 |
| NM_011905 | <i>Tlr2</i> = toll-like receptor 2 | 1.28 | 0.11 | 195.84 | 14.42 | 152.53 | pathogens and endogenous ligands |
| NM_007645 | <i>Cd37</i> = leukocyte antigen CD37 | 0.67 | 0.41 | 158.79 | 21.69 | 236.40 | β -glucan ? interacts with dectin-1 |
| NM_133211 | <i>Tlr7</i> = toll-like receptor 7 | 1.20 | 0.40 | 133.53 | 8.94 | 111.10 | pattern recognition receptor |
| NM_009841 | <i>Cd14</i> = monocyte differentiation antigen CD14 | 0.88 | 0.40 | 128.14 | 14.64 | 145.99 | pattern recognition receptor |
| NM_001204241 | <i>Clec4a3</i> = dendritic cell inhibitory receptor 3 | 1.56 | 0.31 | 106.20 | 1.22 | 67.92 | HIV AKA DCIR3 |
| NM_021297 | <i>Tlr4</i> = toll-like receptor 4 | 0.84 | 0.16 | 47.67 | 4.89 | 56.82 | Bacterial, fungal and parasitic ligands |
| NM_205820 | <i>Tlr13</i> = toll-like receptor 13 | 0.25 | 0.20 | 10.77 | 1.05 | 43.41 | Bacterial 23s rRNA |
| NM_021364 | <i>Clec5a</i> = 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 | <i>Havcr2</i> = 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 | <i>Clec7a</i> = 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 | <i>Cxcl16</i> = C-X-C motif chemokine 16 | 1.01 | 0.12 | 73.65 | 9.26 | 73.20 | G+ and G- bacteria, OxLDL, MTB |
| NM_007649 | <i>Cd48</i> = CD48 antigen | 0.40 | 0.23 | 54.03 | 3.10 | 136.41 | MTB, E-coli |
| NM_008522 | <i>Ltf</i> = lactotransferrin | 1.09 | 0.36 | 189.98 | 15.34 | 174.58 | AGEs, Bacteria |
| NM_010545 | <i>Cd74</i> = H-2 class II histocompatibility antigen gamma | 8.62 | 1.24 | 561.40 | 138.82 | 65.12 | Bacteria (H. Pylori), HIV |
| NM_178924 | <i>Upk1b</i> = uroplakin-1b | 1.76 | 0.44 | 92.79 | 14.57 | 52.63 | Bacteria (E. Coli) |
| NM_205823 | <i>Tlr12</i> = toll-like receptor 12 | 0.24 | 0.34 | 31.52 | 1.47 | 131.90 | Parasites (Taenia solium) |
| NM_030682 | <i>Tlr1</i> = toll-like receptor 1 | 0.40 | 0.06 | 26.25 | 2.36 | 65.62 | Bacterial, fungal and parasitic ligands |
| NM_153510 | <i>Pilra</i> = 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 | <i>Tlr6</i> = toll-like receptor 6 | 0.48 | 0.04 | 22.71 | 0.53 | 46.95 | Microbial and Endogenous ligands |
| NM_001033632 | <i>Ifitm6</i> = interferon induced transmembrane protein 6 | 0.83 | 0.52 | 34.99 | 0.76 | 42.06 | May regulate viral entry |
| ECM receptors | | | | | | | |
| NM_001082960 | <i>Itgam</i> = 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 | <i>Itgb2</i> = integrin beta-2 | 2.10 | 0.58 | 354.39 | 29.02 | 169.03 | CD18 binds Amyloid β and ECM |
| NM_010580 | <i>Itgb5</i> = integrin beta-5 | 11.52 | 1.66 | 592.77 | 39.96 | 51.44 | Adenovirus, Vitronectin |
| NM_010130 | <i>Emr1</i> = 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 | <i>Ecscr</i> = endothelial cell-specific chemotaxis regulator | 2.17 | 0.99 | 223.88 | 15.07 | 103.32 | ECM?, Intracellular filamin |
| NM_178611 | <i>Lair1</i> = Leukocyte-associated immunoglobulin-like | 2.30 | 0.15 | 170.92 | 11.29 | 74.45 | Collagens |
| Endogenous ligands receptors, sensors and transporters | | | | | | | |
| NM_178706 | <i>Siglech</i> = sialic acid binding Ig-like lectin H | 13.55 | 0.57 | 1501.57 | 124.57 | 110.81 | Sialic acid |
| NM_175316 | <i>Slco2b1</i> = solute carrier organic anion transporter family | 9.10 | 0.40 | 725.06 | 41.72 | 79.69 | Organic anions sensing/uptake/transport |
| NM_019741 | <i>Slc2a5</i> = solute carrier family 2, facilitated glucose | 2.27 | 0.29 | 636.67 | 57.71 | 280.91 | Glucose AKA Glut5 |
| NM_001159301 | <i>Lgals9</i> = galectin-9 | 3.60 | 0.88 | 231.94 | 32.35 | 64.44 | Urate, glycans |
| NM_183031 | <i>Gpr183</i> = G-protein coupled receptor 183 | 1.25 | 0.69 | 163.55 | 10.97 | 130.61 | oxysterols |
| NM_019432 | <i>Tmem37</i> = voltage-dependent calcium channel gamma-like | 2.15 | 0.71 | 161.97 | 16.03 | 75.50 | inorganic cations ? |
| NM_021293 | <i>Cd33</i> = 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 | <i>Gpr84</i> = G-protein coupled receptor 84 | 0.18 | 0.15 | 47.84 | 4.75 | 263.50 | medium chain fatty acids |
| NM_011405 | <i>Slc7a7</i> = Y+L amino acid transporter 1 | 0.91 | 0.28 | 81.27 | 2.45 | 89.28 | Amino acids |
| NM_013706 | <i>Cd52</i> = CAMPATH-1 antigen precursor | 4.57 | 0.66 | 392.64 | 43.16 | 86.00 | C1q |
| NM_145581 | <i>Siglec5</i> = sialic acid-binding Ig-like lectin 5 | 0.32 | 0.18 | 20.49 | 1.099 | 64.79 | Sialic acid |
| NM_008339 | <i>Cd79b</i> = 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 | <i>Slc16a3</i> = monocarboxylate transporter 4 | 1.03 | 0.46 | 46.64 | 5.06 | 45.07 | Monocarboxylate |
| Cell-Cell Interactions | | | | | | | |
| NM_010493 | <i>Icam1</i> = intercellular adhesion molecule 1 | 1.60 | 0.66 | 64.16 | 5.66 | 40.20 | LFA-1 ⁹⁶ , Rhinoviruses |
| NM_023892 | <i>Icam4</i> = intercellular adhesion molecule 4 | 1.55 | 0.65 | 64.12 | 5.70 | 41.45 | β2 Integrins |
| NM_013489 | <i>Cd84</i> = SLAM family member 5 precursor | 0.13 | 0.05 | 29.11 | 0.87 | 228.87 | CD84 (Homophilic) |
| NM_008479 | <i>Lag-3</i> = lymphocyte activation gene 3 | 1.16 | 0.36 | 191.56 | 39.56 | 164.66 | binds MHC II |
| NM_019388 | <i>Cd86</i> = 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 | <i>Ptpcr</i> = 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 | <i>Dap12</i> = TYRO protein tyrosine kinase-binding protein | 5.34 | 0.83 | 831.82 | 79.032 | 155.76 | Lipids from membranes AKA CD300L |
| NM_021349 | <i>Tnfrsf13b</i> = TNF receptor superfamily member AKA TACI | 1.99 | 0.16 | 91.90 | 9.67 | 46.08 | BlyS |
| NM_011608 | <i>Tnfrsf17</i> = TNF receptor superfamily member 17 AKA BCMA | 0.49 | 0.19 | 45.69 | 3.74 | 92.71 | BAFF |
| NM_001043317 | <i>Cd22</i> = 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 | <i>Tmem119</i> = 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 | <i>Cd53</i> = 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 | <i>Slamf9</i> = 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 <i>C1orf162</i> homolog | 0.27 | 0.15 | 65.38 | 4.75 | 244.44 | Unknown function. Not known to be expressed on microglia |
| NM_001170332 | <i>Clec4a2</i> = 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 | <i>Clec4b1</i> = 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 | <i>Lilra5</i> = 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 | <i>Tmem8c</i> = transmembrane protein 8C | 0.28 | 0.24 | 14.70 | 2.05 | 53.37 | Unknown function. Not known to be expressed on microglia |
| NM_027965 | <i>Gpr160</i> = 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 | <i>Cd101</i> = 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* |
| <i>Hexb</i> | 10088.77 | 204.6 | 232.81 | 20.23 | 5.44 | * |
| <i>P2ry12</i> | 3781.22 | 326.8 | 4.6 | 0.84 | 9.67 | * |
| <i>S100a8</i> | 3442.67 | 91.53 | 26.36 | 8.22 | 7.03 | * |
| <i>Tmem119</i> | 2753.65 | 154.73 | 12.09 | 2.89 | 7.84 | * |
| <i>S100a9</i> | 2591.5 | 150.21 | 8.01 | 5.53 | 8.27 | * |
| <i>Rnase4</i> | 2258.13 | 44.69 | 6.19 | 1.46 | 8.51 | * |
| <i>Gpr34</i> | 1941.26 | 154.82 | 0.31 | 0.14 | 12.18 | * |
| <i>Fcrls</i> | 1735.36 | 300.71 | 12.5 | 1.52 | 7.12 | * |
| <i>Siglech</i> | 1501.57 | 124.57 | 0.1 | 0.13 | 13.72 | * |
| <i>Cx3cr1</i> | 1493.9 | 87.7 | 0.32 | 0.19 | 12.2 | * |
| <i>Olfm13</i> | 1310.27 | 157.74 | 0.04 | 0.06 | 14.93 | * |
| <i>Fos</i> | 1196.3 | 601.78 | 32.5 | 14.2 | 5.2 | * |
| <i>Slco2b1</i> | 725.06 | 41.72 | 0.08 | 0.08 | 13.37 | * |
| <i>Tgfb1</i> | 661.88 | 111.8 | 20.28 | 3.1 | 5.03 | * |
| <i>Slc2a5</i> | 636.67 | 57.71 | 0.6 | 0.29 | 10 | * |
| <i>Camp</i> | 633 | 91.94 | 0.11 | 0.12 | 11.88 | * |
| <i>P2ry13</i> | 614.13 | 70.26 | 0.42 | 0.2 | 10.47 | * |
| <i>Itgb5</i> | 592.77 | 39.96 | 0.73 | 0.33 | 9.6 | * |
| <i>Crybb1</i> | 481.82 | 46.25 | 0.67 | 0.28 | 9.45 | * |
| <i>Syng1</i> | 452.94 | 29.29 | 16.15 | 1.68 | 4.81 | * |
| <i>Trem2</i> | 442.09 | 30.7 | 5 | 1.06 | 6.48 | * |
| <i>Gpr56</i> | 434.39 | 34.52 | 0.05 | 0.06 | 12.92 | * |
| <i>Ngp</i> | 424.46 | 28.9 | 0.54 | 0.19 | 9.19 | * |
| <i>CMRF35-like molecule</i> | 391.42 | 5.18 | 4.17 | 0.59 | 6.55 | * |
| <i>Hpgd</i> | 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* |
| <i>Fn1</i> | 9.66 | 1.97 | 15327.25 | 1490.36 | 10.65 | * |
| <i>Slpi</i> | 11.47 | 1.36 | 13995.18 | 1602.76 | 10.26 | * |
| <i>Saa3</i> | 0.59 | 0.54 | 9819.21 | 3761.02 | 13.64 | * |
| <i>Prg4</i> | 0.73 | 0.15 | 5882.87 | 440.07 | 12.95 | * |
| <i>Cfp</i> | 7.78 | 2.17 | 5003.61 | 832.46 | 9.31 | * |
| <i>Cd51</i> | 1.18 | 0.18 | 4563.08 | 573.53 | 11.84 | * |
| <i>Gm11428</i> | 30.61 | 8.17 | 4340.94 | 669.69 | 7.13 | * |
| <i>Crip1</i> | 47.51 | 6.92 | 3745.57 | 374.16 | 6.3 | * |
| <i>Pf4</i> | 47.44 | 7.34 | 3245.96 | 202.38 | 6.09 | * |
| <i>Alox15</i> | 0.56 | 0.22 | 2619.73 | 328.79 | 11.89 | * |
| <i>Ecm1</i> | 1.31 | 0.47 | 2101.98 | 318.96 | 10.52 | * |
| <i>Thbs1</i> | 21.04 | 7.01 | 1964.95 | 256.03 | 6.54 | * |
| <i>Emilin2</i> | 2.24 | 0.55 | 1779.38 | 152.02 | 9.58 | * |
| <i>C4b</i> | 5.37 | 1 | 1414.73 | 235.47 | 8.04 | * |
| <i>Retnla</i> | 2.15 | 1.06 | 1282.59 | 177.11 | 8.8 | * |
| <i>Fabp4</i> | 0.53 | 0.1 | 1261.89 | 123.26 | 10.98 | * |
| <i>F5</i> | 1.45 | 0.21 | 1150.07 | 150.86 | 9.56 | * |
| <i>Ednrb</i> | 2.07 | 0.72 | 1087.94 | 70.41 | 8.92 | * |
| <i>Icam2</i> | 4.78 | 0.89 | 1068.61 | 154.26 | 7.81 | * |
| <i>Fcna</i> | 2.36 | 0.24 | 977.21 | 174.83 | 8.66 | * |
| <i>Ahnak</i> | 9.47 | 1.64 | 888.6 | 47.24 | 6.52 | * |
| <i>Ptgis</i> | 2.34 | 0.61 | 850.46 | 58.21 | 8.52 | * |
| <i>Cxcl13</i> | 2.02 | 0.59 | 753.71 | 170.75 | 8.45 | * |
| <i>Serpinb2</i> | 0.42 | 0.2 | 735.95 | 110.57 | 10.4 | * |
| <i>Msr1</i> | 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 * |
| <i>P2ry12</i> | 3781.22153 | 326.7976 | 4.59994 | 0.84231 | 9.66 | * |
| <i>Tmem119</i> | 2753.65139 | 154.7322 | 12.08648 | 2.89043 | 7.84 | * |
| <i>Gpr34</i> | 1941.25889 | 154.8158 | 0.30624 | 0.13663 | 12.18 | * |
| <i>Csf1r</i> | 1634.12256 | 127.3727 | 337.64869 | 36.02073 | 2.27 | * |
| <i>Cd53</i> | 1516.55585 | 94.30559 | 694.47938 | 30.99505 | 1.13 | * |
| <i>Siglech</i> | 1501.56608 | 124.5712 | 0.10358 | 0.13088 | 13.72 | * |
| <i>Cx3cr1</i> | 1493.89763 | 87.69864 | 0.31728 | 0.18791 | 12.13 | * |
| <i>Selp1g</i> | 1446.82688 | 180.2317 | 609.51334 | 48.2013 | 1.25 | * |
| <i>Ly86</i> | 1073.53467 | 95.10496 | 187.18005 | 22.08544 | 2.52 | * |
| <i>Fcgr3</i> | 1004.49566 | 140.0445 | 713.85426 | 71.56888 | 0.49 | * |
| <i>Fcer1g</i> | 837.22603 | 91.5999 | 416.14125 | 70.85151 | 1.01 | * |
| <i>Tyrobp</i> | 831.81833 | 79.03173 | 544.60018 | 65.16578 | 0.61 | * |
| <i>Slco2b1</i> | 725.06274 | 41.71548 | 0.08113 | 0.07573 | 13.34 | * |
| <i>Itgam</i> | 715.1316 | 70.03395 | 1918.49259 | 163.1004 | -1.42 | * |
| <i>Tgfb1</i> | 661.87659 | 111.803 | 20.27528 | 3.10444 | 5.03 | * |
| <i>Slc2a5</i> | 636.66974 | 57.71076 | 0.60191 | 0.29032 | 9.99 | * |
| <i>P2ry13</i> | 614.12845 | 70.25941 | 0.41807 | 0.19726 | 10.47 | * |
| <i>lfnr1</i> | 610.46837 | 27.50385 | 100.45695 | 4.96574 | 2.6 | * |
| <i>Itgb5</i> | 592.76931 | 39.9607 | 0.73483 | 0.32688 | 9.59 | * |
| <i>Ccr5</i> | 568.59921 | 35.27909 | 68.11265 | 8.08345 | 3.06 | * |
| <i>Cd74</i> | 561.39507 | 138.8234 | 1134.61954 | 200.614 | 1.01 | * |
| <i>Emr1</i> | 495.03944 | 25.71118 | 1445.80143 | 176.5029 | 1.55 | * |
| <i>Cmtm6</i> | 451.56021 | 99.04759 | 82.58009 | 6.42645 | 2.45 | * |
| <i>Cd68</i> | 442.90079 | 90.94506 | 573.09707 | 90.44459 | 0.37 | 0.005 |
| <i>Trem2</i> | 442.09 | 30.7 | 5 | 1.06 | 6.48 | * |
| <i>Fcgr2b</i> | 410.55 | 10.62 | 316.52 | 43.76 | 0.38 | 0.003 |
| <i>Cd52</i> | 392.64 | 43.16 | 727.18 | 75.64 | 0.89 | * |
| <i>Itgb2</i> | 354.39 | 29.02 | 2081.23 | 177.78 | -2.58 | * |
| <i>Gi24</i> | 351.84 | 47.19 | 168.9 | 19.65 | 1.06 | * |
| <i>Entpd1</i> | 291.66 | 18.28 | 58.45 | 5.22 | 2.32 | * |
| <i>Fcgr1</i> | 289.36 | 46.37 | 20.85 | 3.32 | 3.8 | * |
| <i>Cd180</i> | 248.03 | 33.78 | 94.78 | 15.45 | 1.39 | * |
| <i>Cmtm7</i> | 244.96 | 27.08 | 143.74 | 11.51 | 0.77 | * |
| <i>Lgals9</i> | 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 * |
| <i>Tgfb2</i> | 223.96 | 34.43 | 85.17 | 5.39 | 1.39 | * |
| <i>Ecsr</i> | 223.88 | 15.07 | 0.11 | 0.09 | 10.65 | * |
| <i>Tmem173</i> | 212.87 | 29.99 | 15.48 | 1.97 | 3.78 | * |
| <i>Tlr2</i> | 195.84 | 14.42 | 95.25 | 12.67 | 1.04 | * |
| <i>Lag3</i> | 191.56 | 39.56 | 0.03 | 0.05 | 12.16 | * |
| <i>Ltf</i> | 189.98 | 15.34 | 0.05 | 0.06 | 11.73 | * |
| <i>P2ry6</i> | 189.12 | 15.26 | 8.22 | 0.83 | 4.52 | * |
| <i>Il10ra</i> | 187.15 | 3.3 | 59.36 | 7.37 | 1.66 | * |
| <i>Lair1</i> | 170.92 | 11.29 | 11.93 | 1.63 | 3.79 | * |
| <i>Gpr183</i> | 163.55 | 10.97 | 13.06 | 2.38 | 3.63 | * |
| <i>Tmem37</i> | 161.97 | 16.03 | 85.68 | 10.74 | 0.92 | * |
| <i>Cd37</i> | 158.79 | 21.69 | 222.03 | 22.59 | -0.48 | 0.0004 |
| <i>Cd86</i> | 155.07 | 6.44 | 27.48 | 1.65 | 2.49 | * |
| <i>Slamf9</i> | 139.72 | 12.24 | 7.29 | 1.02 | 4.27 | * |
| <i>Tlr7</i> | 133.53 | 8.94 | 68.78 | 5.49 | 0.96 | * |
| <i>Cd14</i> | 128.14 | 14.64 | 115.88 | 12.75 | 0.14 | 0.25 |
| <i>Il6ra</i> | 112.16 | 10.66 | 54.49 | 7.8 | 1.04 | * |
| <i>Clec4a3</i> | 106.2 | 1.22 | 68.57 | 5.3 | 0.63 | * |
| <i>Ptprc</i> | 105.92 | 10.51 | 99.98 | 6.71 | 0.08 | 0.5 |
| <i>Clec5a</i> | 103.31 | 10.29 | 14.33 | 1.28 | 2.85 | * |
| <i>Havcr2</i> | 102.79 | 7.88 | 0.07 | 0.11 | 10.52 | * |
| <i>Upk1b</i> | 92.79 | 14.57 | 0.24 | 0.17 | 8.24 | * |
| <i>Adora3</i> | 92 | 5.96 | 1.31 | 0.44 | 6.13 | * |
| <i>Tnfrsf13b</i> | 91.9 | 9.67 | 35.23 | 3.08 | 1.38 | * |
| <i>Clec7a</i> | 90.46 | 13.78 | 187.07 | 38.49 | -1.05 | * |
| <i>C3ar1</i> | 88.77 | 10.28 | 140.38 | 13.83 | -0.66 | * |
| <i>Ptafr</i> | 86.33 | 10.6 | 25.47 | 4.72 | 1.76 | * |
| <i>Slc7a7</i> | 81.27 | 2.45 | 22.74 | 1.99 | 1.83 | * |
| <i>Gpr77</i> | 75.5 | 12.43 | 2.78 | 0.66 | 4.77 | * |
| <i>Cxcl16</i> | 73.65 | 9.26 | 48.95 | 4.26 | 0.58 | * |
| <i>C1orf162 homolog</i> | 65.38 | 4.75 | 19.1 | 3.46 | 1.78 | * |
| <i>Icam1</i> | 64.16 | 5.66 | 11.89 | 2.24 | 2.44 | * |
| <i>Icam4</i> | 64.12 | 5.7 | 11.82 | 2.25 | 2.44 | * |
| <i>Cmklr1</i> | 62.11 | 3.69 | 158.81 | 11.39 | -1.35 | * |
| <i>Cd33</i> | 56.56 | 0.66 | 14.17 | 1.89 | 1.99 | * |
| <i>Cd48</i> | 54.03 | 3.1 | 38.08 | 2.92 | 0.5 | 0.0002 |
| <i>Clec4a2</i> | 50.24 | 3.01 | 5.07 | 0.64 | 3.27 | * |
| <i>Fcrl1</i> | 48.69 | 3.01 | 1.49 | 0.45 | 5.04 | * |
| <i>Gpr84</i> | 47.84 | 4.75 | 0.29 | 0.14 | 7.41 | * |
| <i>Tlr4</i> | 47.67 | 4.89 | 30.33 | 2.55 | 0.64 | * |
| <i>Il21r</i> | 46.72 | 7.41 | 2.22 | 0.5 | 4.38 | * |
| <i>Slc16a3</i> | 46.64 | 5.06 | 51.61 | 10.3 | -0.15 | 0.31 |
| <i>Tnfrsf17</i> | 45.69 | 3.74 | 0.29 | 0.2 | 7.21 | * |
| <i>Ifitm6</i> | 34.99 | 0.76 | 331.84 | 17.89 | -3.26 | * |
| <i>Lpar5</i> | 32.94 | 1.77 | 79.88 | 9.06 | -1.27 | * |
| <i>Ccr12</i> | 31.85 | 8.92 | 4.85 | 0.61 | 2.7 | * |
| <i>Gpr160</i> | 31.63 | 4.38 | 7.79 | 1.09 | 2 | * |
| <i>Tlr12</i> | 31.52 | 1.47 | 0.06 | 0.09 | 8.82 | * |
| <i>Clec4b1</i> | 30.61 | 0.68 | 3.4 | 0.55 | 3.17 | * |
| <i>Pilra</i> | 30.53 | 2.05 | 286.31 | 13.14 | -3.24 | * |
| <i>Cyslr1</i> | 30.19 | 1.2 | 16.69 | 2.89 | 0.85 | * |
| <i>C5ar1</i> | 29.55 | 2.39 | 69.36 | 10.24 | -1.24 | * |
| <i>Cd84</i> | 29.11 | 0.87 | 19.29 | 2.93 | -0.02 | 0.93 |
| <i>Lilra5</i> | 28.54 | 2.4 | 0.77 | 0.19 | 5.22 | * |
| <i>Tnfrsf1b</i> | 27.07 | 1.45 | 16.46 | 2.02 | 0.73 | * |
| <i>Tlr1</i> | 26.25 | 2.36 | 6.29 | 0.93 | 2.06 | * |
| <i>Tlr6</i> | 22.71 | 0.53 | 14.03 | 1.71 | 0.69 | * |
| <i>Fcgr4</i> | 21.44 | 1.41 | 86.25 | 15.16 | -1.97 | * |
| <i>Siglec5</i> | 20.49 | 1.1 | 0.33 | 0.13 | 5.88 | * |
| <i>Cd79b</i> | 20.32 | 1.44 | 39.31 | 4.8 | -0.95 | * |
| <i>P2Y G</i> | 19.1 | 1.36 | 15.37 | 0.95 | 0.31 | 0.037 |
| <i>Tmem8c</i> | 14.7 | 2.05 | 0.02 | 0.06 | 9.05 | * |
| <i>Cd22</i> | 12.8 | 1.82 | 7.27 | 1.51 | 0.83 | * |
| <i>Csf2rb2</i> | 10.79 | 1.84 | 8.6 | 1.18 | 0.34 | 0.036 |
| <i>Tlr13</i> | 10.77 | 1.05 | 9.91 | 1.31 | 0.09 | 0.53 |
| <i>Cd101</i> | 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 |
| <i>P2rX7</i> | 34.37 | 1.89 | 9.12 | 1.15 | 1.9 | * |
| <i>P2rX4</i> | 32.96 | 2.75 | 58.39 | 7.71 | -0.83 | * |
| <i>P2rX1</i> | 4.14 | 0.96 | 14.56 | 1.62 | -1.78 | * |
| <i>P2rX7b</i> | 2.86 | 0.34 | 0.31 | 0.18 | 3.22 | * |
| <i>P2rX6</i> | 0.49 | 0.29 | 0.07 | 0.09 | 2.96 | * |
| <i>P2rX3</i> | 0.15 | 0.02 | 0.11 | 0.09 | 0.32 | 0.75 |
| <i>P2rX5</i> | 0 | 0 | 0.04 | 0.06 | -25.51 | 1 |
| <i>P2rX7d</i> | 0.1 | 0.08 | 0.06 | 0.07 | 1.07 | 0.38 |
| <i>P2rX2</i> | 0.1 | 0.14 | 0.03 | 0.07 | 0.91 | 0.64 |
| <i>P2ry12</i> | 3781.22 | 326.8 | 4.6 | 0.84 | 9.66 | * |
| <i>P2ry13</i> | 614.13 | 70.26 | 0.42 | 0.2 | 10.47 | * |
| <i>P2ry6</i> | 189.12 | 15.26 | 8.22 | 0.83 | 4.52 | * |
| <i>P2ry14</i> | 1.09 | 0.27 | 11.74 | 1.93 | -3.42 | * |
| <i>P2ry10</i> | 0.67 | 0.03 | 1.98 | 0.36 | -1.42 | * |
| <i>P2ry2</i> | 0.6 | 0.27 | 18.77 | 3.25 | -5.08 | * |
| <i>P2ry1</i> | 0.31 | 0.19 | 3.88 | 0.91 | -3.49 | * |
| <i>P2ry4</i> | 0.22 | 0.08 | 0.36 | 0.19 | -0.52 | 0.34 |
| CHEMOKINE RECEPTORS | | | | | | |
| <i>Ccr5</i> | 568.6 | 35.28 | 68.11 | 8.08 | 3.06 | * |
| <i>Ccr1</i> | 20.97 | 3.66 | 227.47 | 8.07 | -3.45 | * |
| <i>Ccr2</i> | 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) | | | | | | |
| <i>Ccr3</i> | 1.38 | 0.29 | 0.84 | 0.35 | 0.7 | 0.048 |
| <i>Ccr4</i> | 0.23 | 0.12 | 0.04 | 0.05 | 1.97 | 0.015 |
| <i>Ccr6</i> | 0.91 | 0.36 | 0.43 | 0.22 | 1.12 | 0.003 |
| <i>Ccr7</i> | 0.12 | 0.09 | 0.67 | 0.34 | -2.45 | 0.004 |
| <i>Ccr8</i> | 0 | 0 | 0.05 | 0.08 | -1.1 | 1 |
| <i>Ccr9</i> | 0.07 | 0.08 | 0.3 | 0.25 | -0.98 | 0.18 |
| <i>Ccr10</i> | 0.1 | 0.08 | 0.15 | 0.14 | -0.26 | 1 |
| <i>Cx3cr1</i> | 1493.9 | 87.7 | 0.32 | 0.19 | 12.13 | * |
| <i>Cxcr4</i> | 12.3 | 0.07 | 4.77 | 2.21 | 1.34 | * |
| <i>Cxcr1</i> | 0.18 | 0.08 | 0.13 | 0.11 | 0.35 | 0.78 |
| <i>Cxcr2</i> | 3.21 | 1.51 | 0.16 | 0.16 | 4.33 | * |
| <i>Cxcr3</i> | 2.17 | 0.32 | 0.3 | 0.12 | 2.91 | * |
| <i>Cxcr5</i> | 0.19 | 0.16 | 3.09 | 0.74 | -4 | * |
| <i>Cxcr6</i> | 0.28 | 0.13 | 0.16 | 0.15 | 0.6 | 0.31 |
| <i>Cxcr7</i> | 1.84 | 0.3 | 12.98 | 2.2 | -2.77 | * |
| Fc RECEPTORS | | | | | | |
| <i>Fcgr3</i> | 1004.5 | 140.04 | 713.85 | 71.57 | 0.49 | * |
| <i>Fcgr2b</i> | 410.55 | 10.62 | 316.52 | 43.76 | 0.38 | 0.003 |
| <i>Fcgr1</i> | 289.36 | 46.37 | 20.85 | 3.32 | 3.8 | * |
| <i>Fcgrt</i> | 44.55 | 2.85 | 62.88 | 5.42 | -0.5 | 0.0004 |
| <i>Fcgr4</i> | 21.44 | 1.41 | 86.25 | 15.16 | -1.97 | * |
| <i>Fcer1g</i> | 837.23 | 91.6 | 416.14 | 70.85 | 1.01 | * |
| <i>Fcer1a</i> | 0.67 | 0.24 | 0.59 | 0.26 | 0.3 | 0.48 |
| <i>Fcr1</i> | 48.69 | 3.01 | 1.49 | 0.45 | 5.04 | * |
| <i>Fcrl6</i> | 0.22 | 0.09 | 0.32 | 0.18 | -0.77 | 0.53 |
| IFITMS | | | | | | |
| <i>Ifitm3</i> | 60.94 | 4.07 | 1218.97 | 101.42 | -4.32 | * |
| <i>Ifitm6</i> | 34.99 | 0.76 | 331.84 | 17.89 | -3.26 | * |
| <i>Ifitm2</i> | 10.53 | 1.17 | 291.94 | 34.17 | -4.75 | * |
| <i>Ifitm1</i> | 5.04 | 0.37 | 0.62 | 0.27 | 2.93 | * |
| <i>Ifitm7</i> | 0.23 | 0.17 | 0.13 | 0.11 | 0.72 | 0.2 |
| <i>Ifitm5</i> | 0 | 0 | 0.14 | 0.21 | -27.1 | 0.08 |
| TOLL-LIKE RECEPTORS | | | | | | |
| <i>Tlr2</i> | 195.84 | 14.42 | 95.25 | 12.67 | 1.04 | * |
| <i>Tlr7</i> | 133.53 | 8.94 | 68.78 | 5.49 | 0.96 | * |
| <i>Tlr4</i> | 47.67 | 4.89 | 30.33 | 2.55 | 0.64 | * |
| <i>Tlr3</i> | 39.42 | 4.27 | 7.84 | 1.02 | 2.34 | * |
| <i>Tlr1</i> | 26.25 | 2.36 | 6.29 | 0.93 | 2.06 | * |
| <i>Tlr6</i> | 22.71 | 0.53 | 14.03 | 1.71 | 0.69 | * |
| <i>Tlr13</i> | 10.77 | 1.05 | 9.91 | 1.31 | 0.09 | 0.53 |
| <i>Tlr9</i> | 8.63 | 0.92 | 0.31 | 0.14 | 4.68 | * |
| <i>Tlr8</i> | 3.57 | 0.7 | 35.74 | 5.65 | -3.35 | * |
| <i>Tlr11</i> | 0.2 | 0.16 | 0.3 | 0.14 | -0.45 | 0.52 |
| <i>Tlr12</i> | 31.52 | 1.47 | 0.06 | 0.09 | 8.82 | * |
| <i>Tlr5</i> | 5.04 | 0.79 | 0.3 | 0.21 | 4.18 | * |
| SIGLECS | | | | | | |
| <i>Siglech</i> | 1501.57 | 124.57 | 0.1 | 0.13 | 13.72 | * |
| <i>Siglece</i> | 17.11 | 1.18 | 3.6 | 0.75 | 2.27 | * |
| <i>Siglecg</i> | 1.82 | 0.1 | 2.27 | 0.48 | -0.28 | 0.33 |
| <i>Siglec3/CD33</i> | 56.56 | 0.66 | 14.17 | 1.89 | 1.99 | * |
| <i>Siglec5</i> | 20.49 | 1.1 | 0.33 | 0.13 | 5.88 | * |
| <i>Siglec1</i> | 1.14 | 0.24 | 4.97 | 0.59 | -2.17 | * |
| <i>Siglec15</i> | 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* |
| <i>Clec7a</i> | 90.46 | 13.78 | 363.73 | 29.41 | 2.01 | * |
| <i>Chi3l3</i> | 70.74 | 16.63 | 329.5 | 43.13 | 2.22 | * |
| <i>Spp1</i> | 9.08 | 1.37 | 194.04 | 11.29 | 4.39 | * |
| <i>Lgals3</i> | 21.22 | 3.03 | 115.04 | 7.74 | 2.44 | * |
| <i>Cd302</i> | 186.16 | 9.83 | 103.29 | 6.63 | -0.85 | * |
| <i>F13a1</i> | 24.92 | 3.73 | 102.2 | 46.24 | 2.04 | * |
| <i>Fgl2</i> | 28.74 | 1.52 | 69.48 | 7.2 | 1.27 | * |
| <i>Cxcr4</i> | 12.3 | 0.07 | 61.84 | 4.48 | 2.32 | * |
| <i>Mrc1</i> | 43.29 | 5.61 | 58.68 | 20.17 | 0.45 | 0.012 |
| <i>Lta4h</i> | 33.61 | 2.51 | 46.84 | 4.17 | 0.48 | 0.008 |
| <i>Ccl8</i> | 9.81 | 1.82 | 39.94 | 30.42 | 2.03 | * |
| <i>Cxcl2</i> | 10.97 | 0.83 | 39.6 | 11.53 | 1.83 | * |
| <i>Il21r</i> | 46.72 | 7.41 | 37.77 | 1.65 | -0.3 | 0.01 |
| <i>Il10</i> | 27.72 | 1.26 | 31.13 | 1.59 | 0.15 | 0.36 |
| <i>Tgfb1</i> | 12.78 | 0.65 | 24.65 | 1.28 | 0.93 | * |
| <i>Tlr1</i> | 26.25 | 2.36 | 22.42 | 1.75 | -0.23 | 0.23 |
| <i>Msr1</i> | 4.8 | 0.69 | 13.77 | 9.2 | 1.53 | * |
| <i>Cd163</i> | 3.7 | 0.54 | 13.61 | 8.78 | 1.86 | * |
| <i>Car2</i> | 10.02 | 2.01 | 13.56 | 1.49 | 0.4 | 0.06 |
| <i>Tgfb1</i> | 27.26 | 5.61 | 13.06 | 1.61 | -1.07 | * |
| <i>Egr2</i> | 4.11 | 2.25 | 11.51 | 2.38 | 1.45 | * |
| <i>Mmp12</i> | 1.33 | 0.2 | 10.18 | 0.81 | 2.95 | * |
| <i>Marco</i> | 0.09 | 0.06 | 8.09 | 11.43 | 6.25 | * |
| <i>Retnlb</i> | 2.15 | 1.06 | 7.94 | 2.98 | 2.18 | * |
| <i>Tlr8</i> | 3.57 | 0.7 | 7.7 | 1.7 | 1.17 | * |
| <i>Arg1</i> | 0.35 | 0.04 | 6.6 | 9.27 | 3.87 | * |
| <i>Gas7</i> | 0.81 | 0.16 | 6.41 | 1.91 | 2.95 | * |
| <i>Il1rn</i> | 0.99 | 0.3 | 6.4 | 0.98 | 2.7 | * |
| <i>Alox15</i> | 0.56 | 0.22 | 6.22 | 5.41 | 3.28 | * |
| <i>Adk</i> | 4.56 | 0.29 | 5.82 | 0.7 | 0.39 | 0.14 |
| <i>Igf1</i> | 1.59 | 0.36 | 3.3 | 0.5 | 0.97 | 0.005 |
| <i>Cxcl1</i> | 0.47 | 0.07 | 0.89 | 0.49 | 0.98 | 0.1 |
| <i>Cxcl3</i> | 0.26 | 0.06 | 0.49 | 0.38 | 0.61 | 0.5 |
| <i>Cd209e</i> | 0.24 | 0.09 | 0.45 | 0.18 | 0.97 | 0.31 |
| <i>Ccl26</i> | 0.09 | 0.13 | 0.4 | 0.34 | 1.79 | 0.12 |
| <i>Ccl17</i> | 0.59 | 0.25 | 0.39 | 0.31 | -0.33 | 0.52 |
| <i>Ccl20</i> | 0.05 | 0.07 | 0.23 | 0.18 | 3.1 | 0.07 |
| Classical Priming Genes Old/Young Microglia: Figure 7b | | | | | | |
| <i>Tnf</i> | 16.61 | 4.91 | 104.96 | 56.42 | 2.63 | * |
| <i>Bcl2a1a</i> | 101.09 | 9.38 | 99.63 | 8 | -0.03 | 0.88 |
| <i>Cxcl10</i> | 8.37 | 1.62 | 35.98 | 12.62 | 2.06 | * |
| <i>Xiap</i> | 40.42 | 9.81 | 33.11 | 5.91 | -0.28 | 0.13 |
| <i>Nampt</i> | 19.64 | 1.61 | 26.77 | 2.72 | 0.46 | 0.017 |
| <i>Tymp</i> | 31.28 | 5.45 | 19.15 | 1.41 | -0.7 | 0.0003 |
| <i>Birc3</i> | 12.18 | 1.63 | 17.56 | 1.15 | 0.55 | 0.008 |
| <i>Il15</i> | 17.92 | 1.39 | 12.15 | 0.94 | -0.55 | 0.008 |
| <i>Gadd45gip1</i> | 41.12 | 7.04 | 23.29 | 1.81 | -0.82 | * |
| <i>Ccl9</i> | 3.93 | 1.03 | 7.81 | 4.3 | 1.05 | 0.00009 |
| <i>Tnfrsf10</i> | 4.73 | 1.03 | 5.87 | 0.45 | 0.29 | 0.28 |
| <i>Il6</i> | 5.34 | 0.63 | 4.49 | 2.54 | -0.31 | 0.31 |
| <i>Pycard</i> | 355.48 | 16.52 | 182.13 | 4.75 | -0.96 | * |
| <i>Naip5</i> | 5.44 | 0.57 | 8.25 | 2.06 | 0.66 | 0.008 |
| <i>Nlrp1b</i> | 0.6 | 0.28 | 0.33 | 0.23 | -0.82 | 0.37 |
| <i>Nlrp1a</i> | 0.11 | 0.14 | 0.06 | 0.03 | 1.76 | 0.19 |
| <i>Nlrp3</i> | 24.18 | 7.6 | 18.38 | 3.94 | -0.4 | 0.04 |
| <i>Casp1</i> | 11.49 | 1.66 | 11.1 | 2.28 | -0.01 | 0.98 |
| <i>Aim2</i> | 31.7 | 0.49 | 30.43 | 1.89 | -0.06 | 0.75 |
| <i>Nlr4</i> | 0.49 | 0.1 | 0.74 | 0.28 | 0.88 | 0.14 |
| <i>Ifny</i> | 0.19 | 0.17 | 0.21 | 0.03 | -0.44 | 1 |
| <i>Il12a</i> | 0.14 | 0.11 | 0.24 | 0.13 | 1.19 | 0.73 |
| <i>Il12b</i> | 0.18 | 0.13 | 0.59 | 0.08 | 1.36 | 0.084 |
| <i>Il18</i> | 31.4 | 1.21 | 20.36 | 0.67 | -0.63 | 0.0011 |
| <i>Il1b</i> | 17.72 | 2.36 | 51.61 | 15.19 | 1.49 | * |
| <i>Il33</i> | 0.92 | 0.25 | 0.93 | 0.39 | -0.15 | 0.88 |
| <i>Irak1</i> | 24.25 | 1.26 | 25.28 | 1.99 | 0.07 | 0.71 |
| <i>Irf1</i> | 21.5 | 0.29 | 22.03 | 0.87 | 0.04 | 0.84 |
| <i>Myd88</i> | 37.99 | 2.46 | 33.13 | 2.23 | -0.2 | 0.28 |
| <i>Panx1</i> | 7.1 | 1.04 | 6.9 | 0.29 | -0.04 | 0.93 |
| <i>Ptgs2</i> | 6.35 | 2.53 | 41.86 | 17.22 | 2.67 | * |
| <i>Stk30</i> | 0.32 | 0.13 | 0.61 | 0.59 | 0.62 | 0.35 |
| <i>Ripk2</i> | 13.19 | 0.94 | 18.15 | 3.02 | 0.47 | 0.025 |
| <i>Txnip</i> | 227.06 | 44.09 | 168.45 | 16.23 | -0.42 | 0.012 |
| Microglial Sensome Old vs Young: Figure 8a | | | | | | |
| <i>Escr</i> | 223.88 | 15.07 | 89.42 | 10.83 | -1.32 | * |
| <i>Trem2</i> | 442.09 | 30.7 | 183.71 | 8.62 | -1.26 | * |
| <i>Tnfrsf17</i> | 45.69 | 3.74 | 22.56 | 1.48 | -1.02 | * |
| <i>Tmem37</i> | 161.97 | 16.03 | 82.1 | 3.56 | -0.98 | * |
| <i>Gpr34</i> | 1941.26 | 154.82 | 1092.41 | 6.89 | -0.83 | * |
| <i>P2ry12</i> | 3781.22 | 326.8 | 2131.2 | 76.38 | -0.83 | * |
| <i>P2ry13</i> | 614.13 | 70.26 | 346.84 | 7.74 | -0.82 | * |
| <i>Gpr183</i> | 163.55 | 10.97 | 96.99 | 5.41 | -0.75 | * |
| <i>Fcrl1</i> | 48.69 | 3.01 | 29.67 | 3.47 | -0.71 | 0.00009 |
| <i>Tyrobp</i> | 831.82 | 79.03 | 521.65 | 16.63 | -0.67 | 0.00005 |
| <i>Cmtm7</i> | 244.96 | 27.08 | 155.56 | 7.68 | -0.65 | 0.0001 |
| <i>Cd79b</i> | 20.32 | 1.44 | 13.05 | 1.48 | -0.65 | 0.002 |
| <i>Adora3</i> | 92 | 5.96 | 59.66 | 4.39 | -0.62 | 0.0004 |
| <i>Ifngr1</i> | 610.47 | 27.5 | 403.69 | 15.87 | -0.6 | 0.0003 |
| <i>Cxcl16</i> | 73.65 | 9.26 | 49.12 | 3.23 | -0.59 | 0.0009 |
| <i>Fcgr1</i> | 289.36 | 46.37 | 192.82 | 8.46 | -0.59 | 0.0005 |
| <i>Ccr5</i> | 568.6 | 35.28 | 382.15 | 6.4 | -0.57 | 0.0006 |
| <i>Slc2a5</i> | 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 |
| <i>Cd53</i> | 1516.56 | 94.31 | 1061.66 | 20.28 | -0.51 | 0.002 |
| <i>Siglech</i> | 1501.57 | 124.57 | 1067.68 | 51.79 | -0.49 | 0.003 |
| <i>Cd86</i> | 155.07 | 6.44 | 110.81 | 3.1 | -0.48 | 0.005 |
| <i>Emr1</i> | 495.04 | 25.71 | 355.93 | 15.23 | -0.47 | 0.004 |
| <i>Slco2b1</i> | 725.06 | 41.72 | 522.58 | 13.27 | -0.47 | 0.004 |
| <i>Fcgr3</i> | 1004.5 | 140.04 | 730.62 | 21.87 | -0.46 | 0.005 |
| <i>Tlr6</i> | 22.71 | 0.53 | 17.02 | 1.86 | -0.43 | 0.034 |
| <i>Ptofr</i> | 86.33 | 10.6 | 66.03 | 3.11 | -0.39 | 0.026 |
| <i>Gpr160</i> | 31.63 | 4.38 | 24.28 | 3.42 | -0.37 | 0.047 |
| <i>Cysl1r1</i> | 30.19 | 1.2 | 23.08 | 2.35 | -0.37 | 0.049 |
| <i>Lilra5</i> | 28.54 | 2.4 | 22.54 | 1.9 | -0.35 | 0.071 |
| <i>Tmem173</i> | 212.87 | 29.99 | 166.94 | 4.35 | -0.34 | 0.043 |
| <i>C1orf162 homolog</i> | 65.38 | 4.75 | 51.62 | 4.58 | -0.33 | 0.057 |
| <i>Lag3</i> | 191.56 | 39.56 | 153.72 | 27 | -0.32 | 0.057 |
| <i>Cmtm6</i> | 451.56 | 99.05 | 365.66 | 21.6 | -0.3 | 0.067 |
| <i>Tmem119</i> | 2753.65 | 154.73 | 2239.9 | 98.02 | -0.3 | 0.071 |
| <i>Gpr77</i> | 75.5 | 12.43 | 61.38 | 8.09 | -0.3 | 0.088 |
| <i>Il21r</i> | 46.72 | 7.41 | 37.77 | 1.65 | -0.3 | 0.098 |
| <i>Lair1</i> | 170.92 | 11.29 | 137.88 | 3.92 | -0.29 | 0.084 |
| <i>Tnfrsf1b</i> | 27.07 | 1.45 | 22.22 | 1.23 | -0.28 | 0.144 |
| <i>Clec4a2</i> | 50.24 | 3.01 | 40.38 | 1.27 | -0.27 | 0.11 |
| <i>Itgam</i> | 715.13 | 70.03 | 595.78 | 56.33 | -0.26 | 0.11 |
| <i>Ly86</i> | 1073.53 | 95.1 | 898.04 | 18.31 | -0.26 | 0.12 |
| <i>Tlr4</i> | 47.67 | 4.89 | 40.42 | 4.91 | -0.23 | 0.19 |
| <i>Cd48</i> | 54.03 | 3.1 | 45.87 | 5.78 | -0.23 | 0.19 |
| <i>Clec4b1</i> | 30.61 | 0.68 | 26.09 | 1.27 | -0.23 | 0.19 |
| <i>Tgfb1</i> | 661.88 | 111.8 | 565.47 | 39.51 | -0.23 | 0.17 |
| <i>Tlr1</i> | 26.25 | 2.36 | 22.42 | 1.75 | -0.23 | 0.23 |
| <i>Slc7a7</i> | 81.27 | 2.45 | 71.16 | 5.01 | -0.19 | 0.28 |
| <i>Itgb5</i> | 592.77 | 39.96 | 523.64 | 14.61 | -0.18 | 0.28 |
| <i>Csf1r</i> | 1634.12 | 127.37 | 1446.93 | 91.48 | -0.18 | 0.29 |
| <i>Fcer1g</i> | 837.23 | 91.6 | 760.22 | 70.34 | -0.14 | 0.41 |
| <i>Cd14</i> | 128.14 | 14.64 | 116.5 | 13.22 | -0.14 | 0.42 |
| <i>Cd33</i> | 56.56 | 0.66 | 51.74 | 2.18 | -0.12 | 0.5 |
| <i>Il10ra</i> | 187.15 | 3.3 | 172.08 | 13.76 | -0.12 | 0.48 |
| <i>Cd180</i> | 248.03 | 33.78 | 230.59 | 22.44 | -0.11 | 0.53 |
| <i>Entpd1</i> | 291.66 | 18.28 | 272.73 | 13.65 | -0.1 | 0.567 |
| <i>Il6ra</i> | 112.16 | 10.66 | 105.93 | 12.93 | -0.08 | 0.63 |
| <i>Cd101</i> | 10.72 | 0.76 | 10.14 | 0.55 | -0.08 | 0.718 |
| <i>Upk1b</i> | 92.79 | 14.57 | 89.77 | 2.58 | -0.05 | 0.8 |
| <i>Clec5a</i> | 103.31 | 10.29 | 100.24 | 8.13 | -0.04 | 0.81 |
| <i>Gi24 isoform 2</i> | 351.84 | 47.19 | 347.28 | 18.27 | -0.02 | 0.91 |
| <i>Cmkir1</i> | 62.11 | 3.69 | 61.36 | 4.92 | -0.02 | 0.94 |
| <i>Gpr84</i> | 47.84 | 4.75 | 47.51 | 8.66 | -0.01 | 0.96 |
| <i>Tlr7</i> | 133.53 | 8.94 | 133.56 | 1.86 | 0 | 1 |
| <i>Cd84</i> | 29.11 | 0.87 | 24.79 | 0.51 | 0.01 | 0.96 |
| <i>Icam4</i> | 64.12 | 5.7 | 65.31 | 6.93 | 0.03 | 0.89 |
| <i>Tgfb2</i> | 223.96 | 34.43 | 228.01 | 23.78 | 0.03 | 0.88 |
| <i>Icam1</i> | 64.16 | 5.66 | 65.42 | 7 | 0.03 | 0.87 |
| <i>Selplg</i> | 1446.83 | 180.23 | 1478.04 | 78.83 | 0.03 | 0.85 |
| <i>Havcr2</i> | 102.79 | 7.88 | 106.77 | 6.17 | 0.05 | 0.76 |
| <i>Cd68</i> | 442.9 | 90.95 | 466.69 | 48.59 | 0.08 | 0.65 |
| <i>Lgals9</i> | 231.94 | 32.35 | 244.76 | 14.56 | 0.08 | 0.64 |
| <i>Cd37</i> | 158.79 | 21.69 | 168.23 | 13.09 | 0.08 | 0.63 |
| <i>Fcgr2b</i> | 410.55 | 10.62 | 434.09 | 34.62 | 0.08 | 0.62 |
| <i>Tlr13</i> | 10.77 | 1.05 | 11.57 | 1.35 | 0.09 | 0.69 |
| <i>Clec4a3</i> | 106.2 | 1.22 | 113.44 | 10.64 | 0.1 | 0.56 |
| <i>Tnfrsf13b</i> | 91.9 | 9.67 | 98.31 | 9.99 | 0.1 | 0.56 |
| <i>Cx3cr1</i> | 1493.9 | 87.7 | 1608.4 | 29.84 | 0.11 | 0.52 |
| <i>Slamf9</i> | 139.72 | 12.24 | 152.01 | 3.23 | 0.12 | 0.48 |
| <i>Itgb2</i> | 354.39 | 29.02 | 389.14 | 19.08 | 0.14 | 0.38 |
| <i>P2ry6</i> | 189.12 | 15.26 | 213.22 | 11.53 | 0.18 | 0.29 |
| <i>Lpar5</i> | 32.94 | 1.77 | 36.96 | 2.83 | 0.18 | 0.32 |
| <i>Tlr12</i> | 31.52 | 1.47 | 37.52 | 3.21 | 0.25 | 0.18 |
| <i>Csf2rb2</i> | 10.79 | 1.84 | 13.28 | 2.44 | 0.29 | 0.17 |
| <i>Siglec5</i> | 20.49 | 1.1 | 25.79 | 1.25 | 0.32 | 0.09 |
| <i>Ptprc</i> | 105.92 | 10.51 | 132.54 | 16.5 | 0.33 | 0.06 |
| <i>Tmem8c</i> | 14.7 | 2.05 | 19.8 | 1.02 | 0.42 | 0.03 |
| <i>C3ar1</i> | 88.77 | 10.28 | 121.97 | 12.74 | 0.46 | 0.007 |
| <i>Slc16a3</i> | 46.64 | 5.06 | 68.51 | 8.57 | 0.56 | 0.0016 |
| <i>Tlr2</i> | 195.84 | 14.42 | 291.48 | 6.63 | 0.57 | 0.0006 |
| <i>Pilra</i> | 30.53 | 2.05 | 49.1 | 6.35 | 0.7 | 0.0001 |
| <i>Fcgr4</i> | 21.44 | 1.41 | 40.61 | 5.49 | 0.91 | * |
| <i>Cd74</i> | 561.4 | 138.82 | 1154.89 | 275.43 | 1.04 | * |
| <i>C5ar1</i> | 29.55 | 2.39 | 63.28 | 5.48 | 1.1 | * |
| <i>Cd52</i> | 392.64 | 43.16 | 893.87 | 26.99 | 1.19 | * |
| <i>Cd22</i> | 12.8 | 1.82 | 31.79 | 0.99 | 1.3 | * |
| <i>Ccr12</i> | 31.85 | 8.92 | 80.07 | 24.86 | 1.32 | * |
| <i>Clec7a</i> | 90.46 | 13.78 | 363.73 | 29.41 | 2.01 | * |
| <i>Ltf</i> | 189.98 | 15.34 | 983.46 | 46.61 | 2.37 | * |
| <i>Ifitm6</i> | 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 | | | | | | |
| <i>P2rx7</i> | 0.473185 | 34.37 | 25.17 | 1.04 | -0.44 | 0.02 |
| <i>P2rx4</i> | 0.687457 | 32.96 | 43.12 | 1.69 | 0.41 | 0.03 |
| <i>P2rx1</i> | 0.238864 | 4.14 | 2.64 | 0.71 | -0.69 | 0.04 |
| <i>P2rx7b</i> | 0.083878 | 2.86 | 1.68 | 0 | -0.83 | 0.03 |
| <i>P2rx6</i> | 0.0735167 | 0.49 | 0.89 | 0.24 | 0.69 | 0.19 |
| <i>P2rx3</i> | 0.00502543 | 0.15 | 0.22 | 0.15 | 0.78 | 0.73 |
| <i>P2rx5</i> | 0 | 0 | 0.19 | 0.14 | 27.77 | 0.13 |
| <i>P2rx7d</i> | 0.0190876 | 0.1 | 0.03 | 0.04 | -0.8 | 1 |
| <i>P2rx2</i> | 0.0345156 | 0.1 | 0.07 | 0.1 | -0.23 | 1 |
| <i>P2ry12</i> | 3781.22 | 326.8 | 2131.2 | 76.38 | -0.83 | * |
| <i>P2ry13</i> | 614.13 | 70.26 | 346.84 | 7.74 | -0.82 | * |
| <i>P2ry6</i> | 189.12 | 15.26 | 213.22 | 11.53 | 0.18 | 0.3 |
| <i>P2ry14</i> | 1.09 | 0.27 | 1.65 | 0.62 | 0.61 | 0.2 |
| <i>P2ry10</i> | 0.67 | 0.03 | 2.13 | 0.17 | 1.53 | 0 |
| <i>P2ry2</i> | 0.6 | 0.27 | 1.29 | 0.52 | 1.34 | 0.02 |
| <i>P2ry1</i> | 0.31 | 0.19 | 1.08 | 0.26 | 1.77 | 0.01 |
| <i>P2ry4</i> | 0.22 | 0.08 | 0.35 | 0.11 | 0.96 | 0.31 |
| CHEMOKINE RECEPTORS | | | | | | |
| <i>Ccr5</i> | 568.6 | 35.28 | 382.15 | 6.4 | -0.57 | 0.0006 |
| <i>Ccr1</i> | 20.97 | 3.66 | 37.51 | 5.37 | 0.86 | * |
| <i>Ccr2</i> | 6.85 | 0.96 | 43.14 | 1.7 | 2.65 | * |
| <i>Ccr3</i> | 1.38 | 0.29 | 2.12 | 1.02 | 0.75 | 0.09 |
| <i>Ccr4</i> | 0.23 | 0.12 | 0.22 | 0.04 | -0.02 | 1 |
| <i>Ccr6</i> | 0.91 | 0.36 | 0.82 | 0.3 | -0.21 | 0.78 |
| <i>Ccr7</i> | 0.12 | 0.09 | 0.71 | 0.51 | 2.64 | 0.02 |
| <i>Ccr8</i> | 0 | 0 | 0.14 | 0.1 | 2.36 | 1 |
| <i>Ccr9</i> | 0.07 | 0.08 | 0.13 | 0.09 | -0.22 | 1 |
| <i>Ccr10</i> | 0.1 | 0.08 | 0 | 0 | -27 | 0.25 |
| <i>Cx3cr1</i> | 1493.9 | 87.7 | 1608.4 | 29.84 | 0.11 | 0.52 |
| <i>Cxcr4</i> | 12.3 | 0.07 | 61.84 | 4.48 | 2.32 | * |
| <i>Cxcr1</i> | 0.18 | 0.08 | 0.22 | 0.17 | 0.04 | 1 |
| <i>Cxcr2</i> | 3.21 | 1.51 | 14.48 | 3.81 | 2.23 | * |
| <i>Cxcr3</i> | 2.17 | 0.32 | 1.61 | 0.57 | -0.45 | 0.3 |
| <i>Cxcr5</i> | 0.19 | 0.16 | 0.19 | 0.14 | 0.03 | 1 |
| <i>Cxcr6</i> | 0.28 | 0.13 | 0.49 | 0.17 | 0.78 | 0.31 |
| <i>Cxcr7</i> | 1.84 | 0.3 | 1.61 | 0.64 | -0.24 | 0.66 |
| Fc RECEPTORS | | | | | | |
| <i>Fcgr3</i> | 1004.5 | 140.04 | 730.62 | 21.87 | -0.46 | 0.01 |
| <i>Fcgr2b</i> | 410.55 | 10.62 | 434.09 | 34.62 | 0.08 | 0.62 |
| <i>Fcgr1</i> | 289.36 | 46.37 | 192.82 | 8.46 | -0.59 | 0.0005 |
| <i>Fcgrt</i> | 44.55 | 2.85 | 37.76 | 2.67 | -0.23 | 0.2 |
| <i>Fcgr4</i> | 21.44 | 1.41 | 40.61 | 5.49 | 0.91 | * |
| <i>Fcer1g</i> | 837.23 | 91.6 | 760.22 | 70.34 | -0.14 | 0.41 |
| <i>Fcer1a</i> | 0.67 | 0.24 | 3.36 | 1.59 | 2.14 | * |
| <i>Fcr1l</i> | 48.69 | 3.01 | 29.67 | 3.47 | -0.71 | 0.0001 |
| <i>Fcr1b</i> | 0.22 | 0.09 | 0.12 | 0.1 | 0.03 | 1 |
| IFITMS | | | | | | |
| <i>Ifitm1</i> | 5.04 | 0.37 | 19.35 | 5.75 | 1.91 | * |
| <i>Ifitm2</i> | 10.53 | 1.17 | 41.64 | 5.59 | 1.93 | * |
| <i>Ifitm3</i> | 60.94 | 4.07 | 242.05 | 6.06 | 1.99 | * |
| <i>Ifitm5</i> | 0 | 0 | 0.18 | 0.15 | 27.78 | 0.13 |
| <i>Ifitm6</i> | 34.99 | 0.76 | 213.75 | 20.48 | 2.61 | * |
| <i>Ifitm7</i> | 0.23 | 0.17 | 0.57 | 0.21 | 1.28 | 0.18 |
| TOLL-LIKE RECEPTORS | | | | | | |
| <i>Tlr2</i> | 195.84 | 14.42 | 291.48 | 6.63 | 0.57 | 0.0006 |
| <i>Tlr7</i> | 133.53 | 8.94 | 133.56 | 1.86 | 0 | 1 |
| <i>Tlr4</i> | 47.67 | 4.89 | 40.42 | 4.91 | -0.23 | 0.19 |
| <i>Tlr3</i> | 39.42 | 4.27 | 59.18 | 2.6 | 0.58 | 0.0001 |
| <i>Tlr1</i> | 26.25 | 2.36 | 22.42 | 1.75 | -0.23 | 0.23 |
| <i>Tlr6</i> | 22.71 | 0.53 | 17.02 | 1.86 | -0.43 | 0.03 |
| <i>Tlr13</i> | 10.77 | 1.05 | 11.57 | 1.35 | 0.09 | 0.69 |
| <i>Tlr9</i> | 8.63 | 0.92 | 10.44 | 0.45 | 0.28 | 0.22 |
| <i>Tlr8</i> | 3.57 | 0.7 | 7.7 | 1.7 | 1.17 | * |
| <i>Tlr11</i> | 0.2 | 0.16 | 0.24 | 0.21 | 0.19 | 1 |
| <i>Tlr12</i> | 31.52 | 1.47 | 37.52 | 3.21 | 0.25 | 0.18 |
| <i>Tlr5</i> | 5.04 | 0.79 | 5.86 | 0.88 | 0.21 | 0.39 |
| SIGLECS | | | | | | |
| <i>Siglech</i> | 1501.57 | 124.57 | 1067.68 | 51.794 | -0.49 | 0.003 |
| <i>Siglece</i> | 17.11 | 1.18 | 17.9946 | 1.9121 | 0.08 | 0.7 |
| <i>Siglecg</i> | 1.82 | 0.1 | 1.29965 | 0.57227 | -0.5 | 0.26 |
| <i>Siglec3/CD33</i> | 56.56 | 0.66 | 51.7396 | 2.17884 | -0.12 | 0.5 |
| <i>Siglec5</i> | 20.49 | 1.1 | 25.78568 | 1.24789 | 0.32 | 0.09 |
| <i>Siglec1</i> | 1.14 | 0.24 | 5.09596 | 2.74354 | 2.25 | * |
| <i>Siglec15</i> | 0 | 0 | 0.11 | 0.16 | 0.42 | 1 |
| Scavenger Receptors | | | | | | |
| <i>Msr1</i> | 4.8 | 0.69 | 7.31 | 1.83 | 0.61 | 0.12 |
| <i>Msr1v2</i> | 0.97 | 0.49 | 0.98 | 0.76 | -0.04 | 1 |
| <i>Scara3</i> | 0.34 | 0.15 | 1.95 | 1.96 | 2.62 | * |
| <i>Scara5</i> | 0.36 | 0.12 | 0.96 | 0.4 | 1.59 | 0.012 |
| <i>Marco</i> | 0.09 | 0.06 | 8.09 | 11.43 | 6.25 | * |
| <i>Cd163</i> | 3.7 | 0.54 | 13.61 | 8.78 | 1.86 | * |
| <i>Cd36</i> | 10.11 | 2.02 | 12.68 | 2.31 | 0.15101728 | 0.15 |
| <i>Scarb1</i> | 9.42 | 0.99 | 9.59 | 0.37 | 1 | 1 |
| <i>Lrp1</i> | 196.48 | 24.24 | 152.73 | 11.8 | -0.37 | 0.03 |
| <i>Lrp10</i> | 55.16 | 6.81 | 65.36 | 4.24 | 0.24 | 0.17 |
| <i>Lrp6</i> | 5.35 | 1.31 | 2.83 | 0.87 | -0.9 | 0 |
| <i>Lrp12</i> | 12.04 | 2.85 | 11.43 | 1.53 | -0.04 | 0.81 |
| <i>Lrp5</i> | 5.86 | 0.4 | 4.54 | 0.25 | -0.39 | 0.16 |
| <i>Lrp11</i> | 2 | 0.4 | 2.12 | 0.59 | 0.25 | 0.48 |
| <i>Lrp4</i> | 2.78 | 0.37 | 2.24 | 0.46 | -0.31 | 0.36 |
| <i>Lrp8</i> | 0.3 | 0.1 | 0.6 | 0.45 | 0.95 | 0.25 |

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