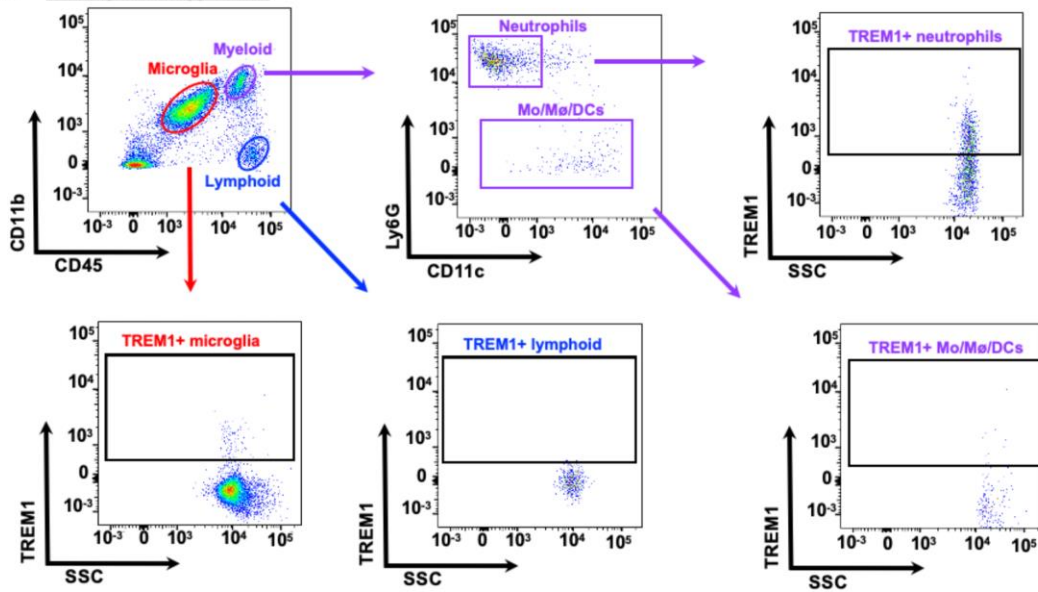
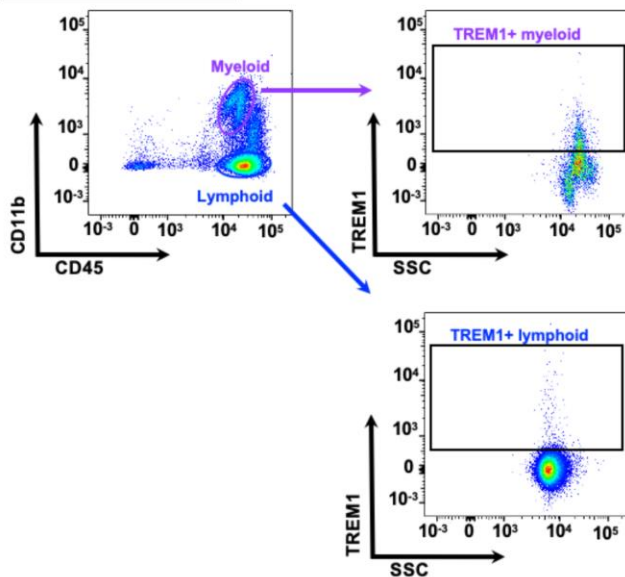


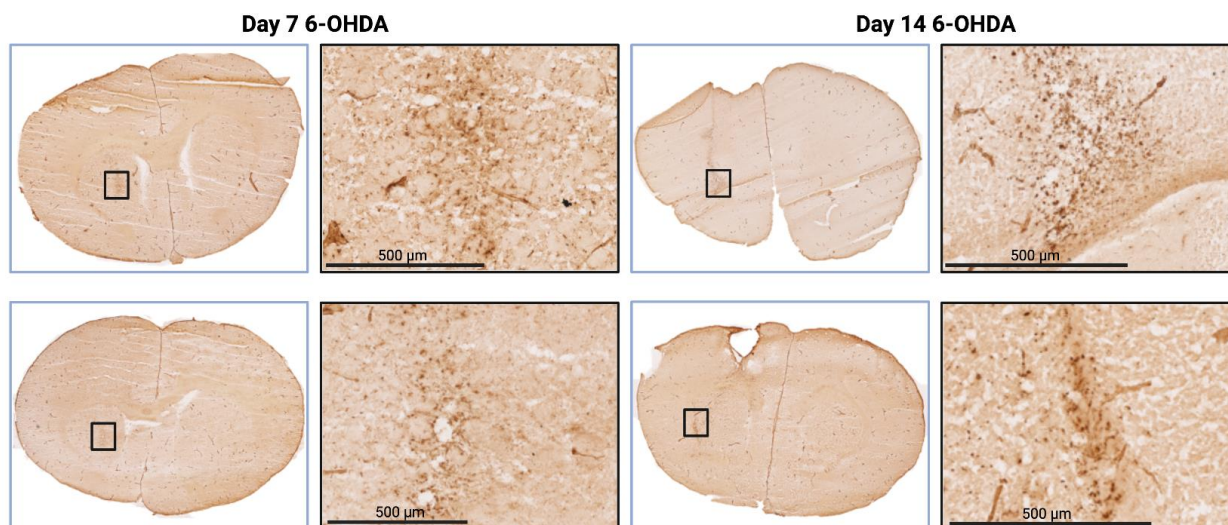
A. Gating strategy brain



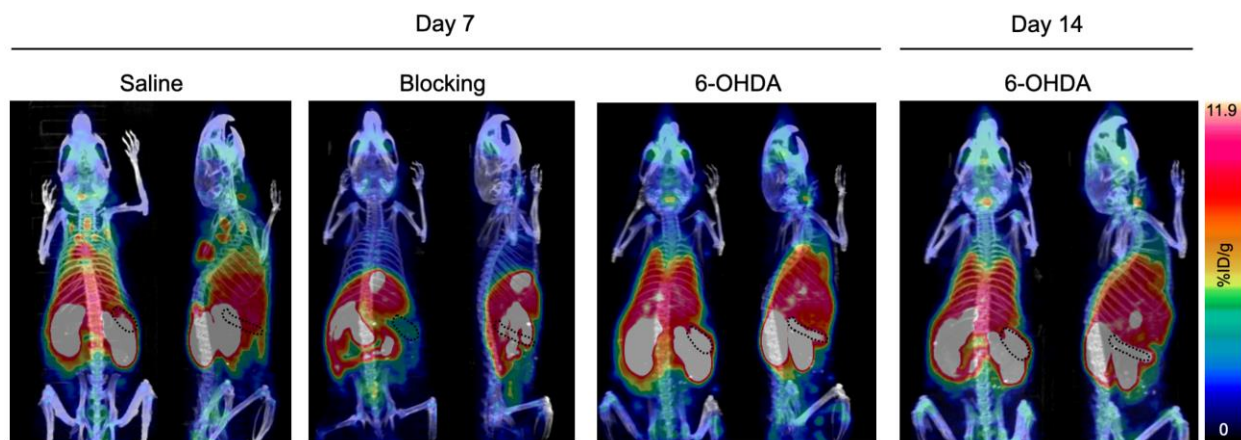
B. Gating strategy spleen



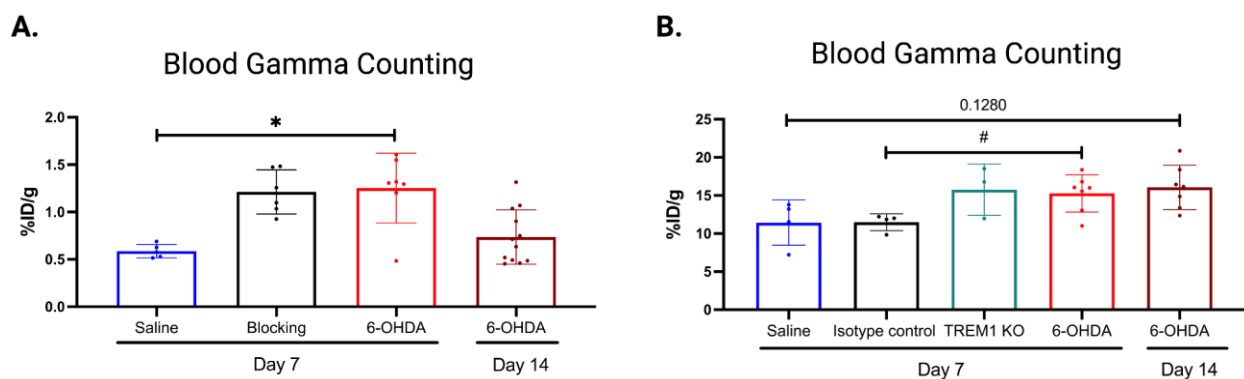
SUPPLEMENTAL FIGURE 1. Flow cytometry gating strategies. A) Microglial ($CD45^{int}CD11b^+$), myeloid ($CD45^{hi}CD11b^+$), and lymphoid ($CD45^+CD11b^-$) cells were isolated from the live singlet population of ipsilateral d7-6-OHDA brain. Myeloid cells were further characterized into neutrophils ($CD45^{hi}CD11b^+Ly6G^+$) and monocytes/macrophages/DCs ($CD45^{hi}CD11b^+Ly6G^-$). **B)** Representative gating strategy of live singlets in d7-6-OHDA spleen.



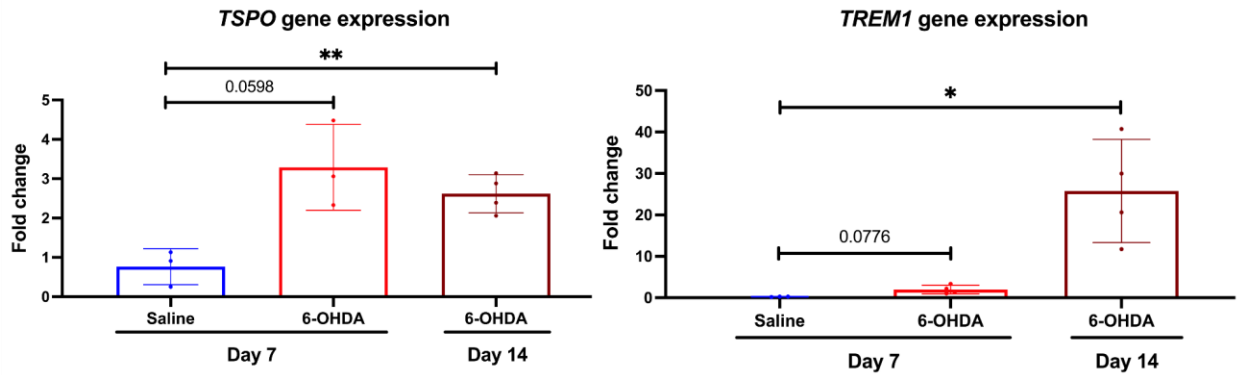
SUPPLEMENTAL FIGURE 2. Immunohistochemistry of four additional representative mouse brains 7 or 14 days after injection of 6-OHDA. CD68 immunohistochemistry of brains sections from two d7-6-OHDA and two d14-6-OHDA mice. Brain sections were collected immediately after PET/CT imaging to perform ARG and they were subsequently stained with CD68 to enable accurate quantification of ARG signal in the sites containing innate immune activation. Whole coronal brain sections and zoomed in 20x image of staining from within the callout region in the striatum. CD68 positive immunostaining was present in slightly different regions of the brain due to small variations in 6-OHDA injection site.



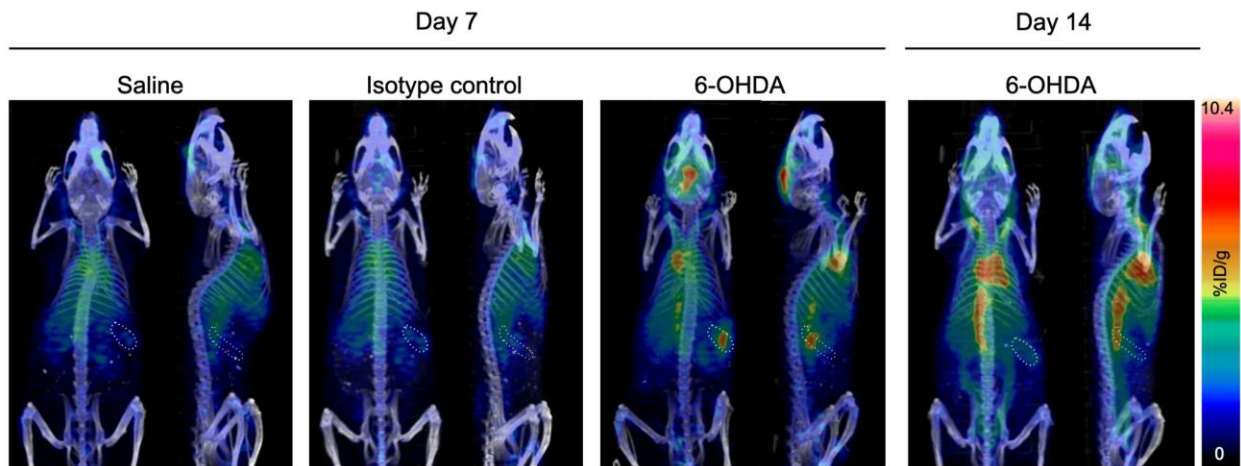
SUPPLEMENTAL FIGURE 3. Representative ^{18}F -GE-180 PET/CT whole body maximum intensity projection (MIP) images of d7- saline, blocking, and 6-OHDA mice, and d14-6-OHDA mice. Black dashed lines outline the spleen.



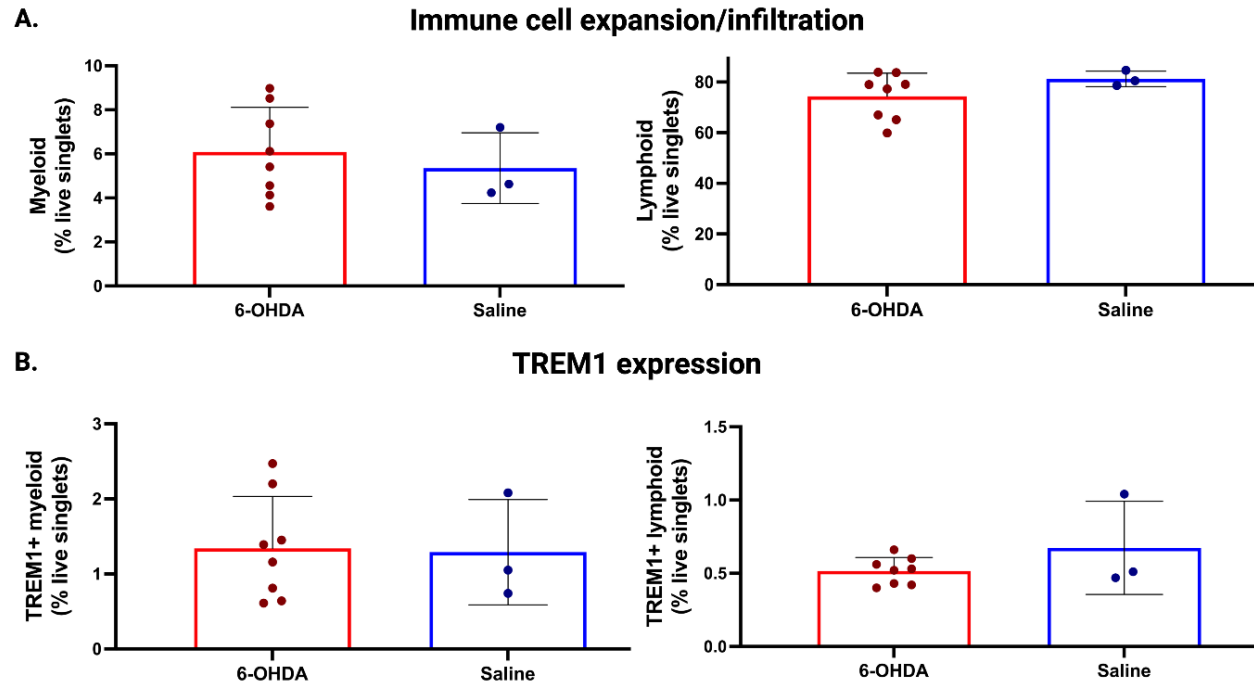
SUPPLEMENTAL FIGURE 4. Ex vivo gamma counting of peripheral blood of mice injected with **A)** ^{18}F -GE-180 (Saline 0.59 ± 0.07 , Blocking 1.2 ± 0.23 , d7-6-OHDA 1.3 ± 0.37 , d14-6-OHDA 0.74 ± 0.29) and **B)** ^{64}Cu -TREM1-mAb or ^{64}Cu -Isotype control-mAb (Saline 11.4 ± 2.97 , Isotype control 11.5 ± 1.10 , TREM1 KO 3.5 ± 1.82 , d7-6-OHDA 5.3 ± 0.91 , d14-6-OHDA 4.3 ± 1.32). Data is presented as mean \pm standard deviation. % Injected dose per gram (%ID/g). $^*/\#P < 0.05$.



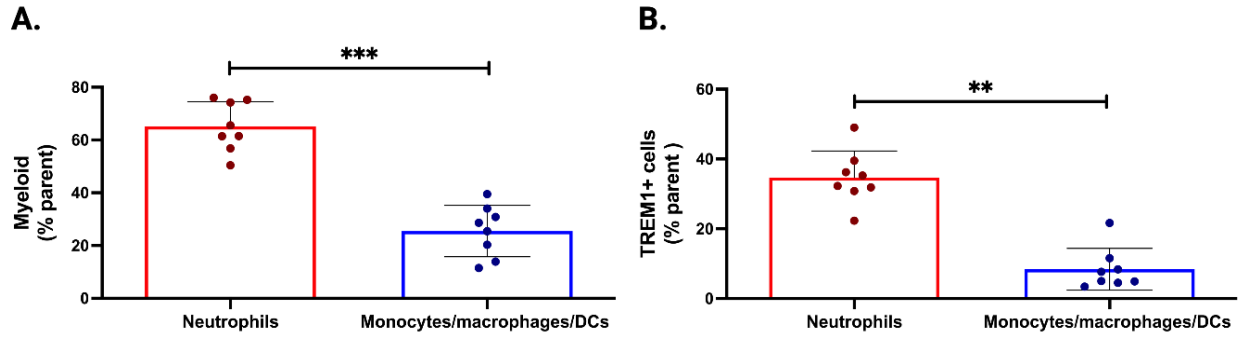
SUPPLEMENTAL FIGURE 5. Gene Expression of TSPO and TREM1. *TSPO* gene expression in the ipsilateral striatum of d7- and d14-6-OHDA mice and saline-injected mice (Saline 0.76 ± 0.46 , d7-6-OHDA 3.3 ± 1.09 , d14-6-OHDA 2.6 ± 0.49). *TREM1* gene expression in the ipsilateral striatum of d7- and d14-6-OHDA mice and saline-injected mice (Saline 0.24 ± 0.06 , d7-6-OHDA 2.0 ± 1.04 , d14-6-OHDA 25.8 ± 12.5). Data is presented as mean \pm standard deviation. * $P < 0.05$, ** $P < 0.01$.



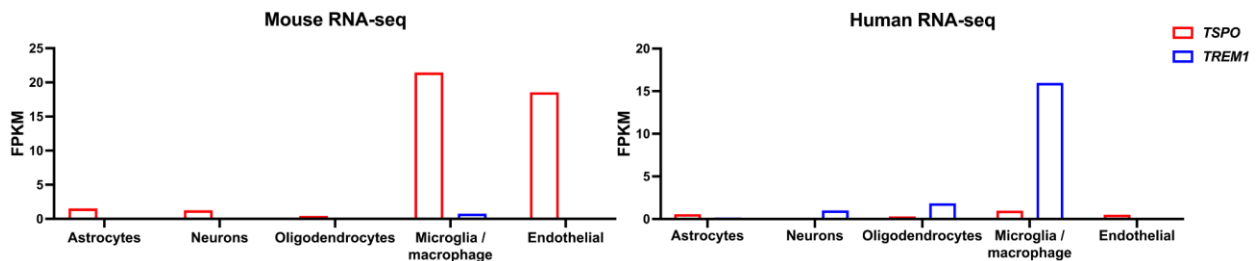
SUPPLEMENTAL FIGURE 6. Representative ^{64}Cu -TREM1-PET/CT whole body maximum intensity projection (MIP) images of d7- saline, isotype control, and 6-OHDA mice, and d14-6-OHDA mice. Black dashed lines outline the spleen.



SUPPLEMENTAL FIGURE 7. Spleen flow cytometry. A) Frequency of peripheral myeloid (CD45^{hi}CD11b⁺) and lymphoid (CD45⁺CD11b⁻) cells in the spleens of d7-6-OHDA and saline-treated mice (Myeloid: Saline 5.4±1.61, d7-6-OHDA 6.1±2.02; Lymphoid: Saline 81.2±3.07, d7-6-OHDA 74.4±9.10). **B)** Frequency of TREM1⁺ myeloid and lymphoid cells in the spleen (TREM1⁺ myeloid: Saline 1.29±0.70, d7-6-OHDA 1.3±0.69; TREM1⁺ lymphoid: Saline 0.67±0.32, d7-6-OHDA 0.52±0.093). Data are expressed as a frequency of total live singlets (mean ± standard deviation). Statistical analysis performed via unpaired t-tests.



SUPPLEMENTAL FIGURE 8. Differentiation of TREM1⁺ Myeloid Cells. **A)** Frequency of neutrophils and monocytes/macrophages/DCs in the ipsilateral brain tissue of 6-OHDA mice expressed as a frequency of all peripheral myeloid cells (Myeloid: Neutrophils 65.1±9.38, Monocytes/macrophages/DCs 25.5±9.74). **B)** Frequency of TREM1⁺ neutrophils and monocytes/macrophages/DCs (TREM1⁺ cells: Neutrophils 34.7±7.68, Monocytes/macrophages/DCs 8.40±5.99) as a percentage of parent cells (mean ± standard deviation). Statistical analysis performed using paired t-tests. Dendritic cells (DCs). **P<0.01, ***P<0.001.



SUPPLEMENTAL FIGURE 9. RNA-Sequencing of TSPO and TREM1 in Mice and Humans. RNA-sequencing data (used with permission from www.brainrnaseq.org; (41)), demonstrating *TSPO* and *TREM1* basal expression in murine and human brains.

SUPPLEMENTAL TABLE 1. Mouse *n* for each experiment

Imaging data					
			ARG	BioD	PET
TSPO	Day 7	Saline	4	5	4
		Blocking	6	6	4
		6-OHDA	12	7	5
	Day 14	6-OHDA	12	12	7
TREM1	Day 7	Saline	3	4	6
		Isotype control	3	4	4
		TREM1-KO	3	3	3
		6-OHDA	9	7	4
	Day 14	6-OHDA	4	7	4
Gene expression					
	Day 7		Saline		5
			6-OHDA		6
	Day 14		6-OHDA		8
TREM1 flow cytometry					
	Day 7		Saline		5
				6-OHDA	
	Day 14		6-OHDA		0