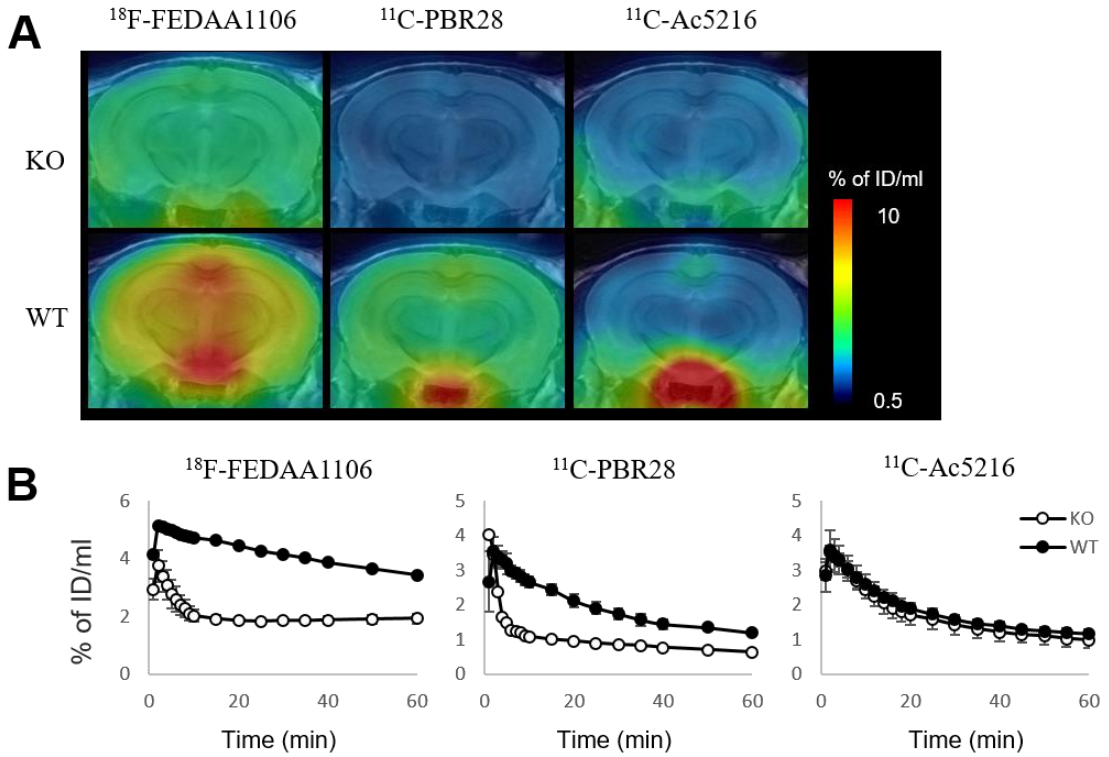
Supplemental Materials

Radiosynthesis and small animal PET imaging

Radiosynthesis of ^{18}F-FEDAA1106, ^{11}C-PBR28 and ^{11}C-Ac5216 was performed as described in previous publications [1-3], and the radiochemical purity of these ligands was > 95%. The specific radioactivity of ^{18}F-FEDAA1106, ^{11}C-PBR28 and ^{11}C-Ac5216 was 183-341, 100-525 and 57-256 GBq/μmol at the end of synthesis, respectively. Radioactive dose injected into mice was approximately 29~38 MBq for 11C-labeld ligands (^{11}C-PBR28 and ^{11}C-Ac5216) and 13-15 MBq for 18F-labeled ligand (^{18}F-FEDAA1106), respectively.



SFig 1. *In-vivo* PET images of brains of WT and TSPO-KO mice following intravenous injection of TSPO radioligands ^{18}F-FEDAA1106, ^{11}C-PBR28 and ^{11}C-Ac5216. **A:** PET

images of coronal mouse brain sections containing neocortex and hippocampus in WT and TSPO-KO Tg mice. PET images were generated by the same method as described in Fig. 1. **B**: Brain uptake was expressed as percentage of injected dose per ml brain volume in hippocampi from WT and TSPOKO mice (n =3 in each group for ^{18}F-FEDAA1106; n =4 and 1 in WT and KO groups for ^{11}C-PBR28, respectively; n =3 in in each group for ^{11}C-Ac5216) over the scan time. Error bars represent SD. WT: wild-type, KO: TSPO-KO.

1. Barron AM, Tokunaga M, Zhang MR, Ji B, Suhara T and Higuchi M. Assessment of neuroinflammation in a mouse model of obesity and beta-amyloidosis using PET. *J Neuroinflammation*. 2016; 13: 221.

2. Maeda J, Zhang MR, Okauchi T, et al. In vivo positron emission tomographic imaging of glial responses to amyloid-beta and tau pathologies in mouse models of Alzheimer's disease and related disorders. *J Neurosci*. 2011; 31: 4720-30.

3. Ji B, Maeda J, Sawada M, et al. Imaging of peripheral benzodiazepine receptor expression as biomarkers of detrimental versus beneficial glial responses in mouse models of Alzheimer's and other CNS pathologies. *J Neurosci*. 2008; 28: 12255-67.