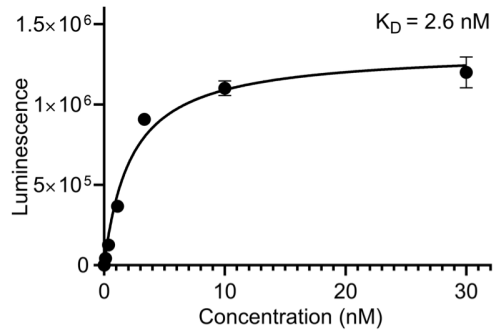
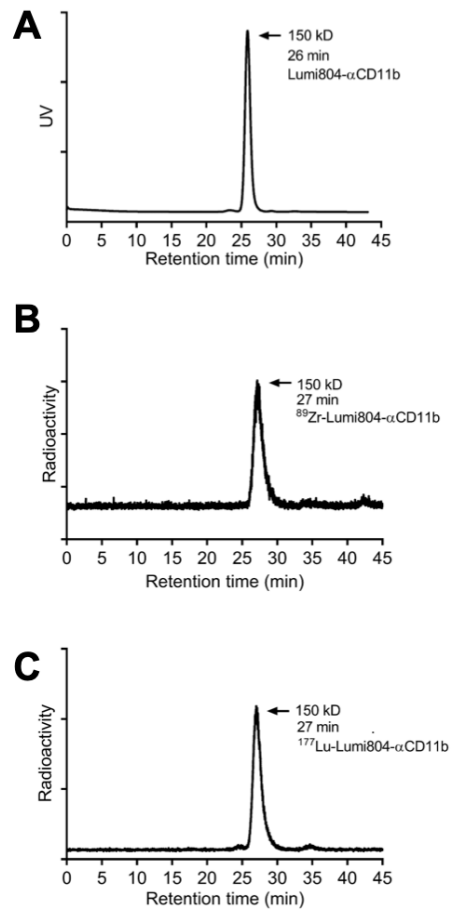


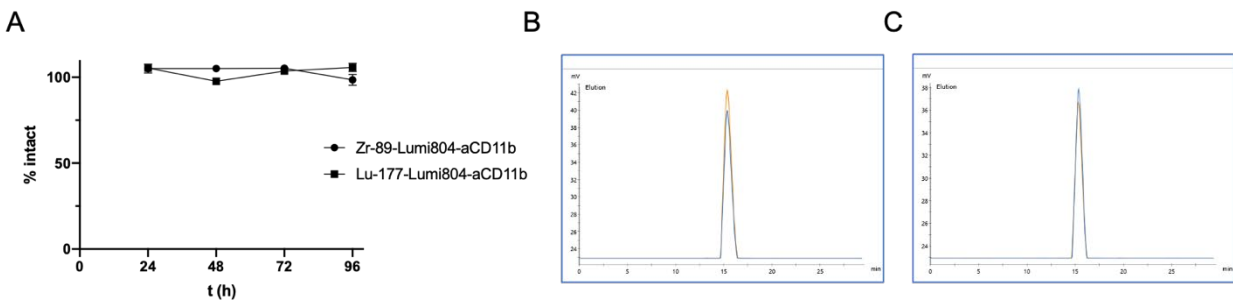
Supplementary Figures



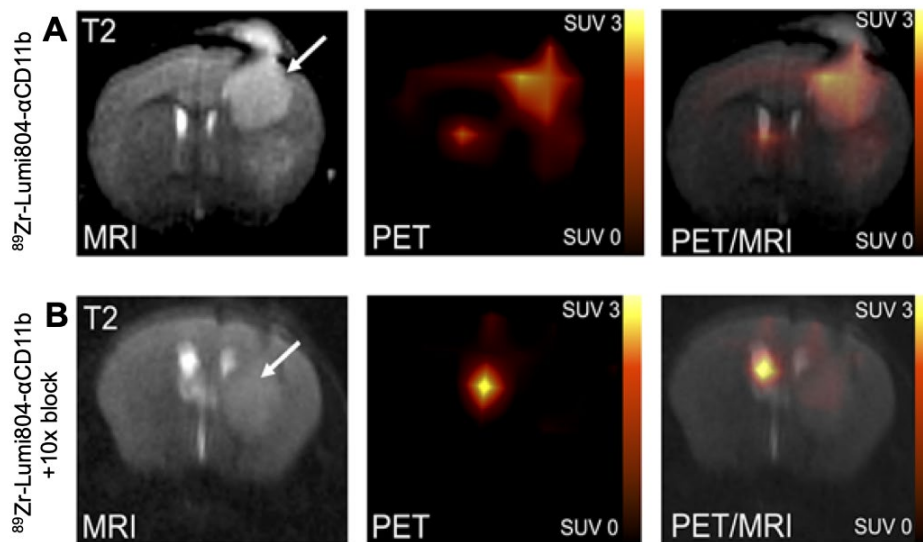
Supplementary Figure 1. Binding affinity of Lumi-804- α CD11b. Binding curve, specific binding of Eu (III)-Lumi804- α CD11b to J774 macrophage ($K_d = 2.6 \text{ nM}$).



Supplementary Figure 2. Representative SEC- HPLC chromatograms of α CD11b and its radioactive conjugates. (A) Representative SEC-HPLC chromatogram of Lumi804- α CD11b in aqueous buffer after 20 days with a (26 min retention time, UV detector, 280 nm). (B-C) Representative radio-SEC-HPLC chromatogram of ^{89}Zr -Lumi804- α CD11b and ^{177}Lu -Lumi804- α CD11b with 27 min retention time (gamma detector).

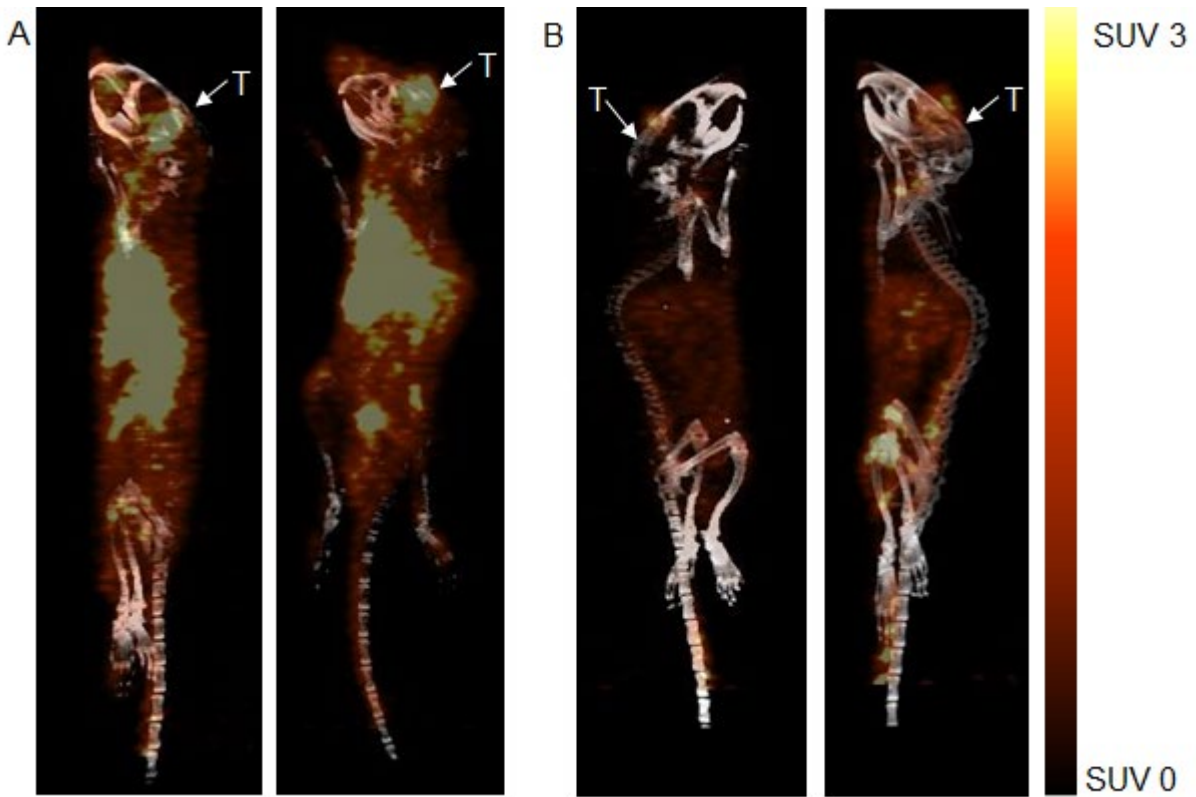


Supplementary Figure 3. (A) Serum stability of ^{89}Zr -Lumi804- αCD11b and ^{177}Lu -Lumi804- αCD11b represented as per cent of control at time zero (n=2). Radio-SEC-HPLC (duplicates overlaid) of ^{89}Zr -Lumi804- αCD11b (B) and ^{177}Lu -Lumi804- αCD11b (C) at 96 hours (retention time 15.3 min).

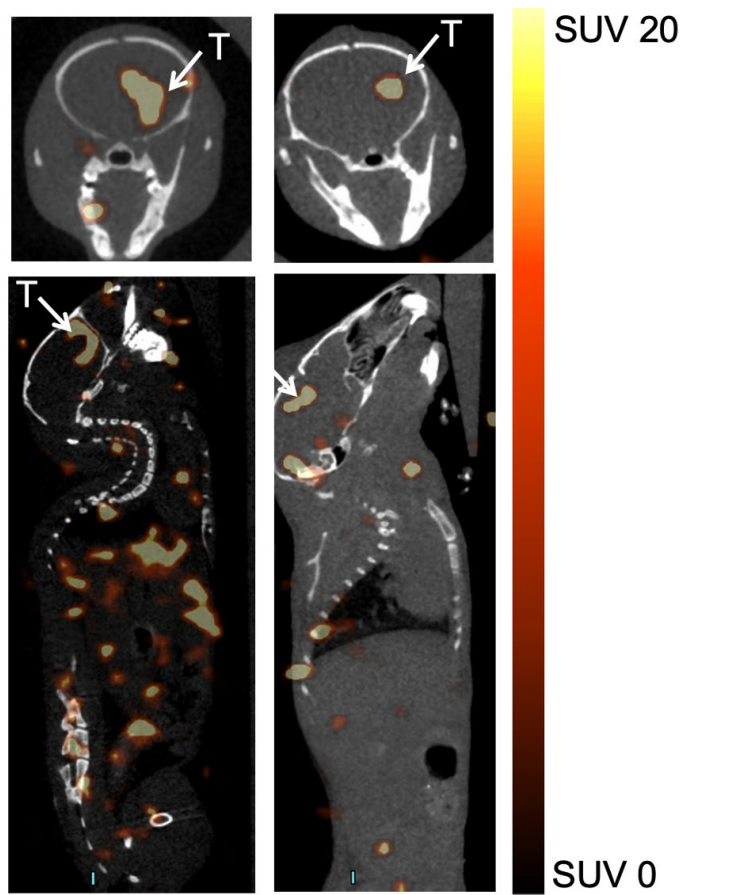


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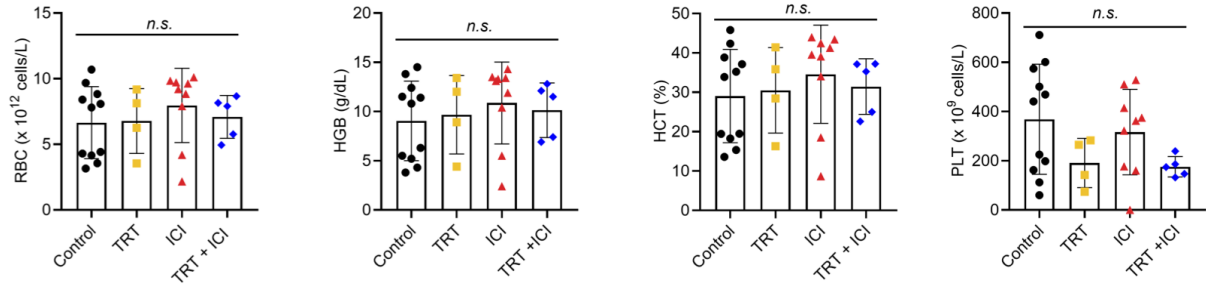
Supplementary Figure 4. PET imaging of ^{89}Zr -Lumi804- αCD11b in GL261 syngeneic glioma mice. (A) Representative axial contrast enhanced T2 MRI, PET and PET/MRI images of the brain of glioma-bearing mice 72 h post-injection of ^{89}Zr -Lumi804- αCD11b . White arrow indicates tumor. **(B)** Representative axial contrast enhanced T2 MRI, PET and PET/MRI images of the brain of glioma-bearing mice 72 h post-injection of ^{89}Zr -Lumi804- αCD11b with 10x blocking dose.



Supplementary Figure 5. PET/CT images of ^{89}Zr -Lumi804- αCD11b in GL261 syngeneic glioma mice (72 h post injection). (A) Mice received ^{89}Zr -Lumi804- αCD11b (3.7 MBq, 11.1 GBq/ μmol) and (B) 10-fold lower specific activity (1.1 GBq/ μmol).



Supplementary Figure 6. SPECT-CT images of ^{177}Lu -Lumi804- αCD11b in GL261 syngeneic glioma mice with transaxial view of the skull (72 h post injection, 7.4 MBq, 11.1 GBq/ μmol).



Supplementary Figure 7. Complete blood count (CBC) panel post-treatment. CBC analysis performed on superficial temporal vein blood showed no leukodepletion from TRT. One-way ANOVA with Tukey's multiple comparisons test was used to assess significance. Data are represented as the mean \pm SD.