

Supplementary Information for

Evaluation of ^{64}Cu -based Radiopharmaceuticals that Target A β Peptide Aggregates as Diagnostic Tools for Alzheimer's Disease

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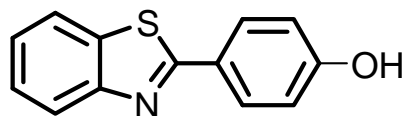
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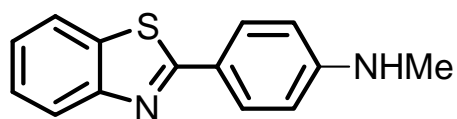
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I. Structure of Blocking Agents Employed



2-(4-hydroxyphenyl)benzothiazole (B₁)



2-(4-methylamino-phenyl)benzothiazole (B₂)

Figure S1. Structure of non-radiolabeled compounds used for blocking studies.

II. A β fibril binding assays of blocking agents B₁ and B₂

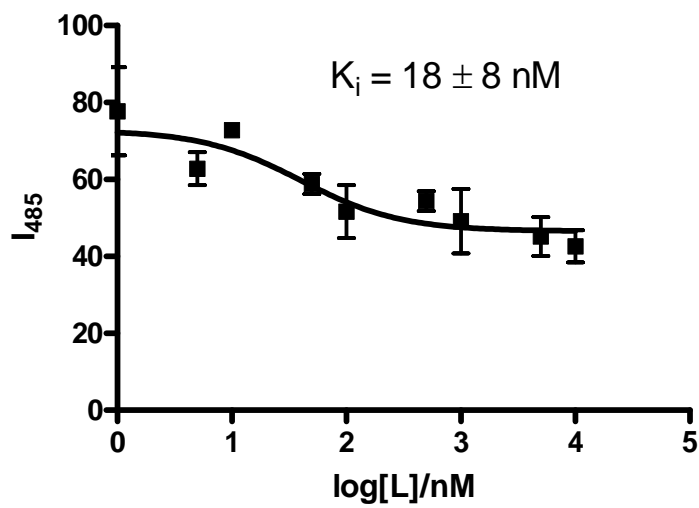


Figure S2. ThT competition assay of B₁ with A β ₄₀ fibrils ($[A\beta] = 2 \mu\text{M}$, $[\text{ThT}] = 1 \mu\text{M}$).

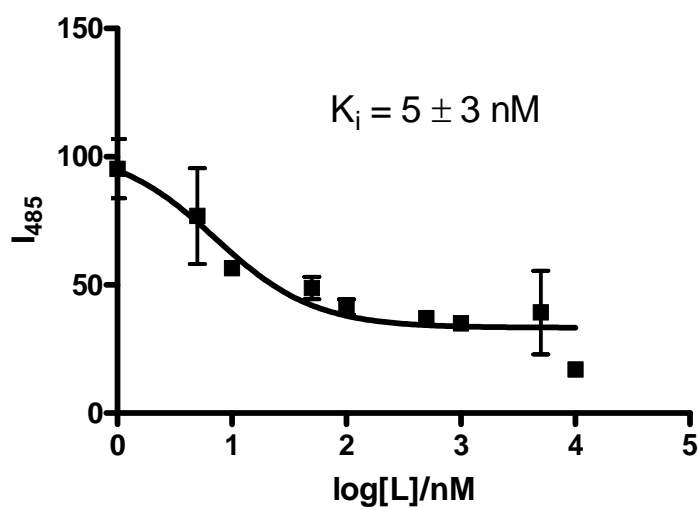


Figure S3. ThT competition assay of B₂ with A β ₄₀ fibrils ($[A\beta] = 2 \mu\text{M}$, $[\text{ThT}] = 1 \mu\text{M}$).

III. A β fibril binding assays of BFCs L₁-L₅

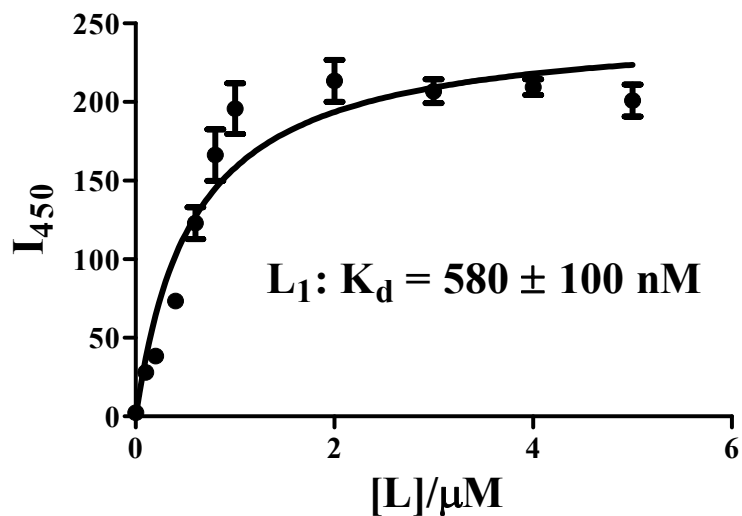


Figure S4. Direct binding fluorescence assay of L₁ with A β ₄₀ fibrils ($[A\beta] = 5 \mu\text{M}$).

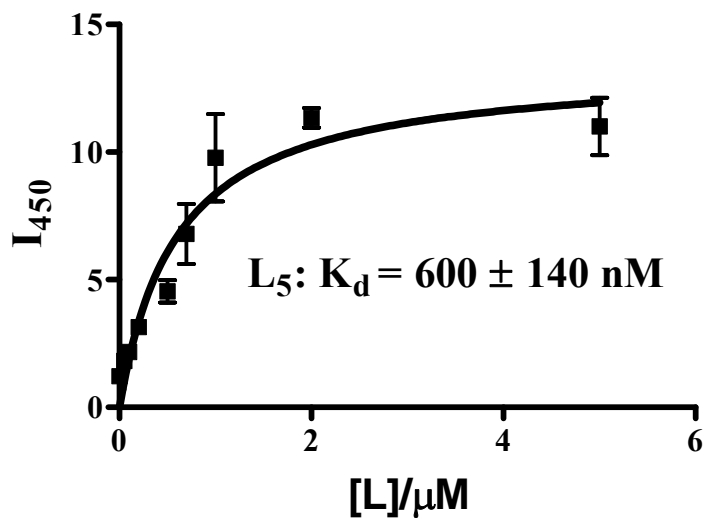


Figure S5. Direct binding fluorescence assay of L₅ with A β ₄₀ fibrils ($[A\beta] = 5 \mu\text{M}$).

IV. A β fibril binding assays of Cu complexes of BFCs L₁-L₅

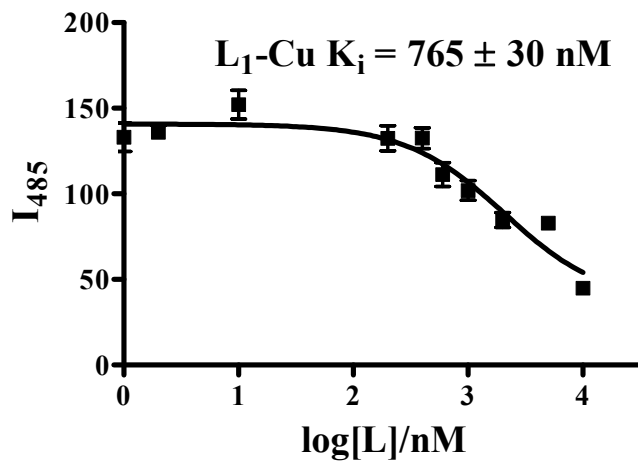


Figure S6. ThT competition assay of L₁-Cu with ThT-bound A β ₄₀ fibrils ($[A\beta] = 2 \mu\text{M}$, $[\text{ThT}] = 1 \mu\text{M}$).

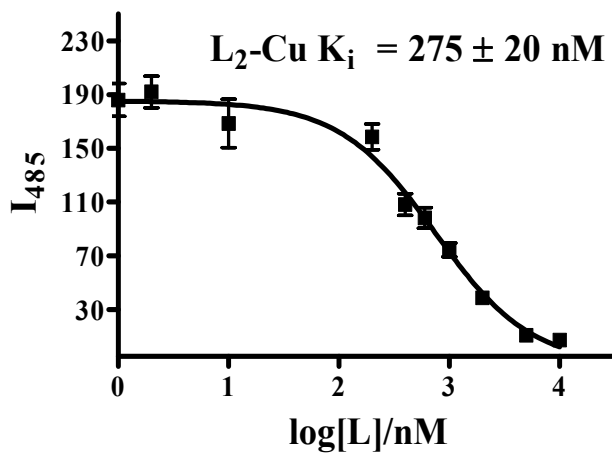


Figure S7. ThT competition assay of L₂-Cu with ThT-bound A β ₄₀ fibrils ($[A\beta] = 2 \mu\text{M}$, $[\text{ThT}] = 1 \mu\text{M}$).

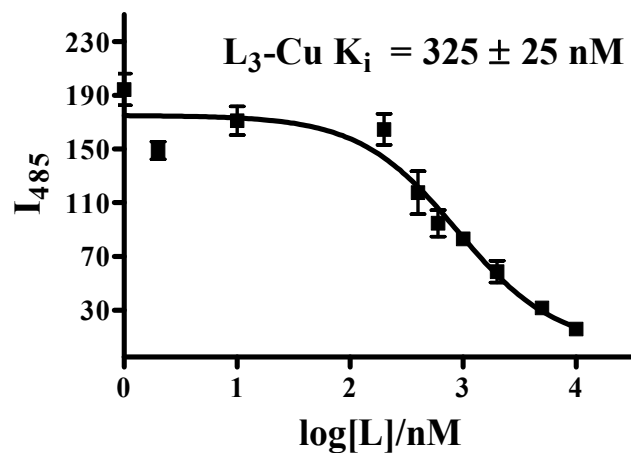


Figure S8. ThT competition assay of L₃-Cu with ThT-bound A β ₄₀ fibrils ([A β] = 2 μM , [ThT] = 1 μM).

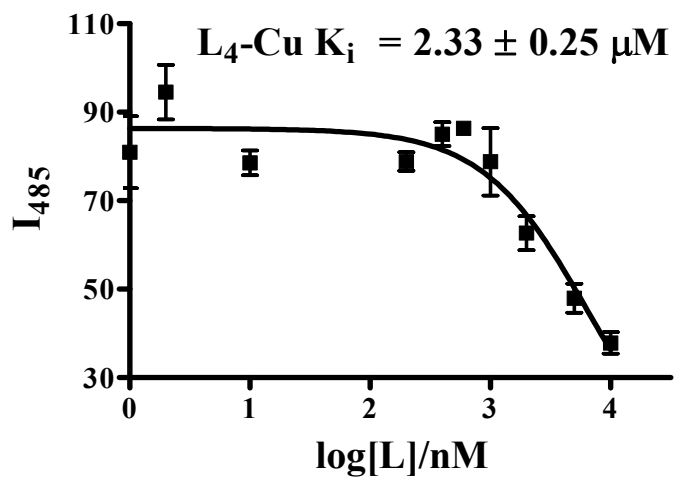


Figure S9. ThT competition assay of L₄-Cu with ThT-bound A β ₄₀ fibrils ([A β] = 2 μM , [ThT] = 1 μM).

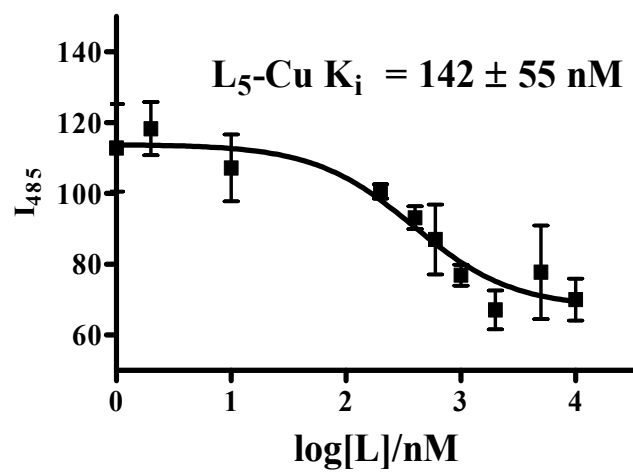


Figure S10. ThT competition assay of $L_5\text{-Cu}$ with ThT-bound $A\beta_{40}$ fibrils ($[A\beta] = 2 \mu\text{M}$, $[\text{ThT}] = 1 \mu\text{M}$).

V. Fluorescence microscopy images of mouse brain sections stained with BFCs L₄ and L₅

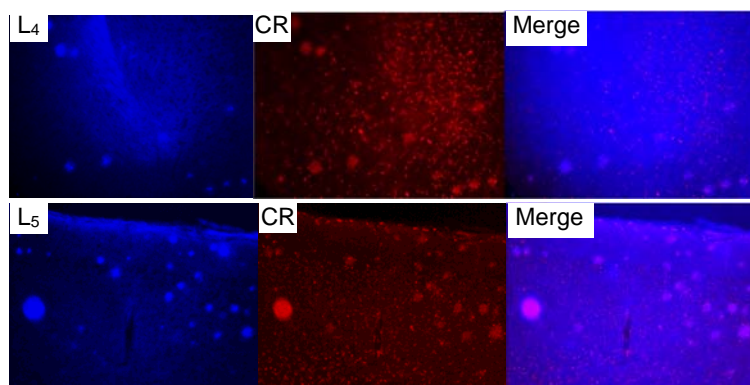


Figure S11. Fluorescence microscopy images of Tg2576 brain sections incubated with compounds L₄ and L₅ (left panels), Congo Red (middle panels), and merged images (right panels).

VI. HPLC traces from ^{64}Cu radiolabeling of BFCs L₀-L₅

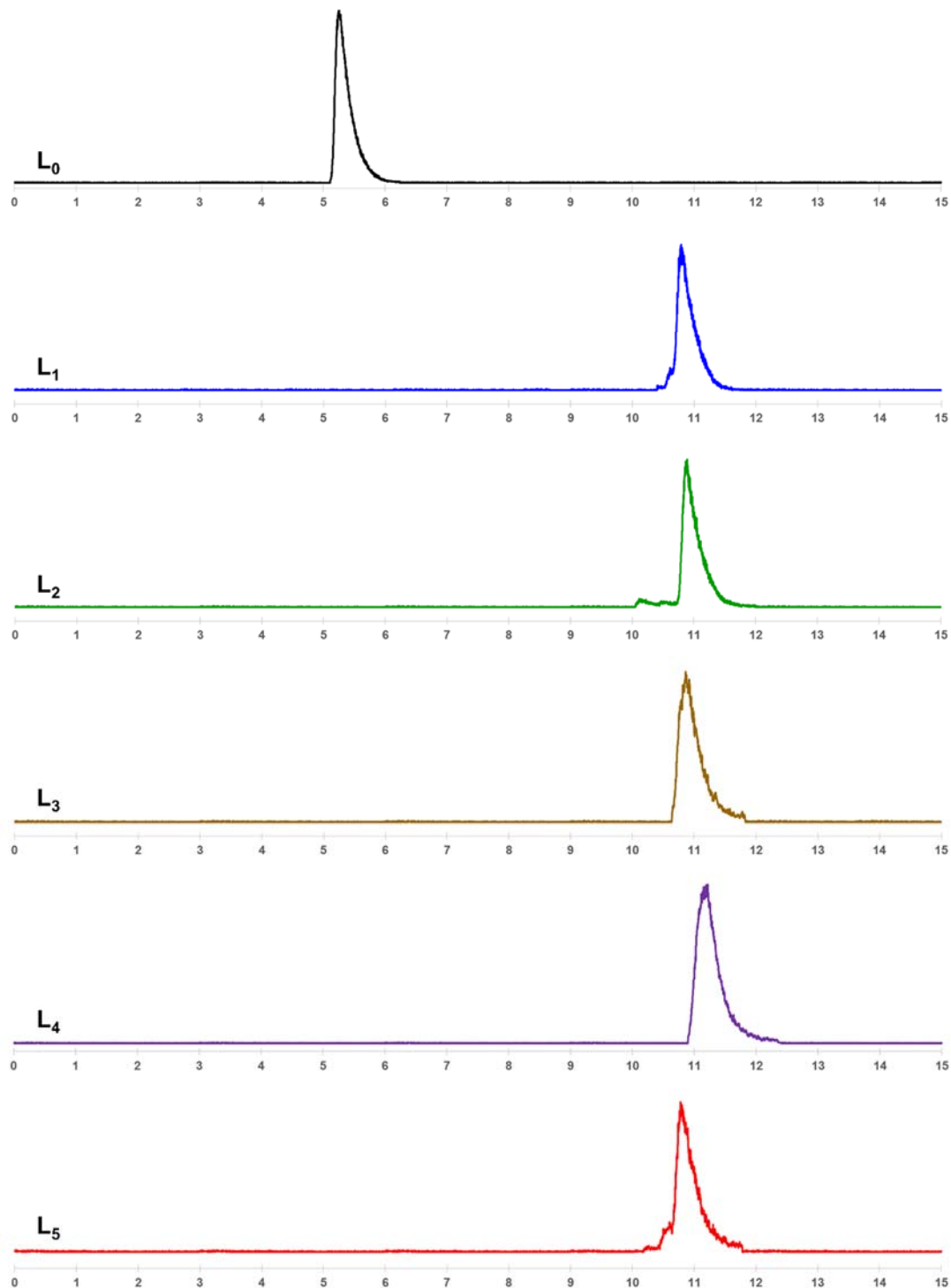


Figure S12. HPLC traces from radiolabeling. Retention times were observed as 5.3, 10.8, 10.9, 10.9, 11.2, and 10.8 minutes, respectively, for the ^{64}Cu -labeled L₀-L₅ complexes, suggesting quantitative radiolabeling. If present, free ^{64}Cu would appear at 2.5 min.

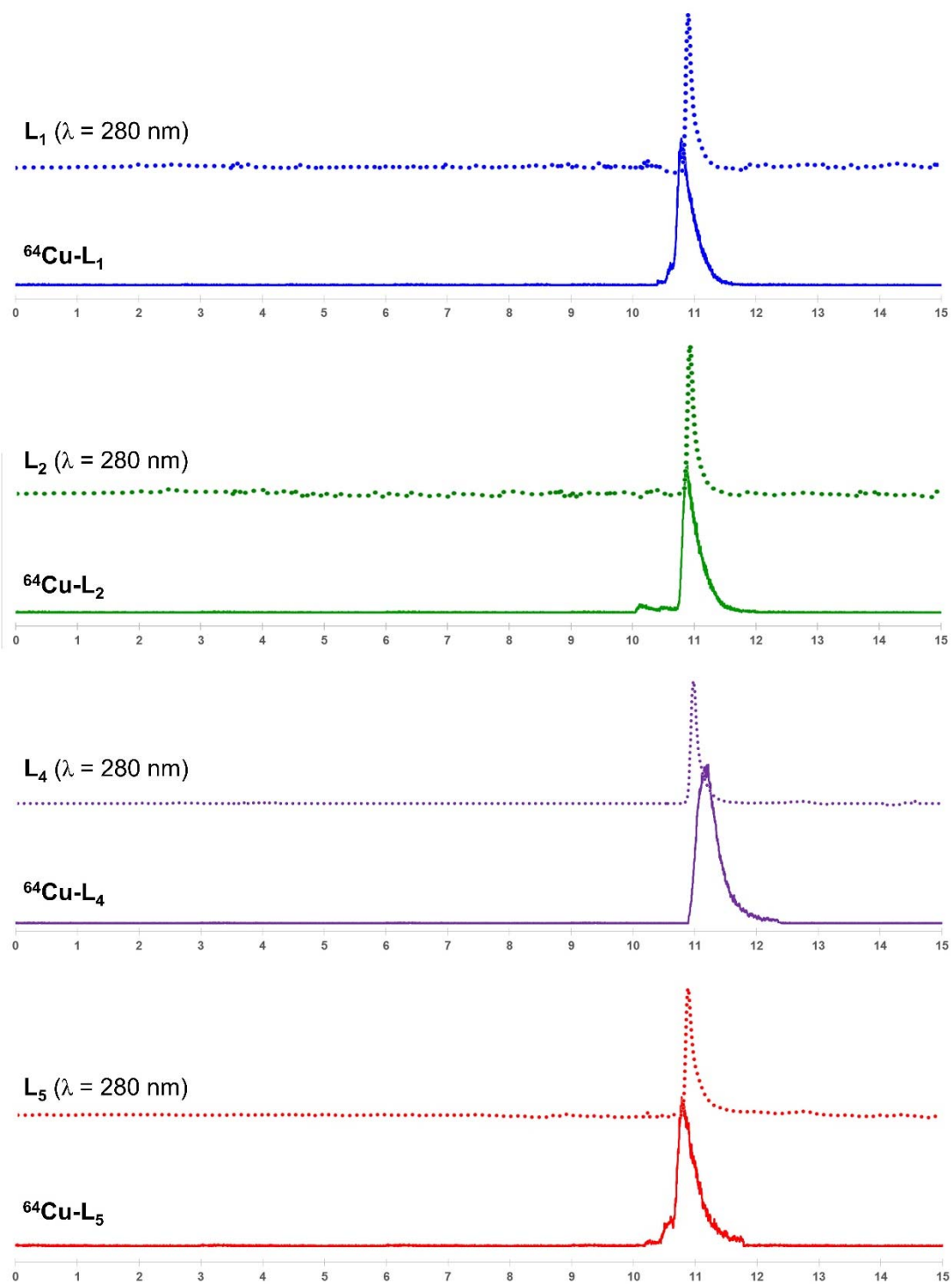


Figure S13. Representative overlays of the HPLC UV-vis traces (280 nm) and radiotraces, confirming that the radioactivity corresponds to ⁶⁴Cu-labeled BFC complexes.

VII. Fused PET/CT Scans

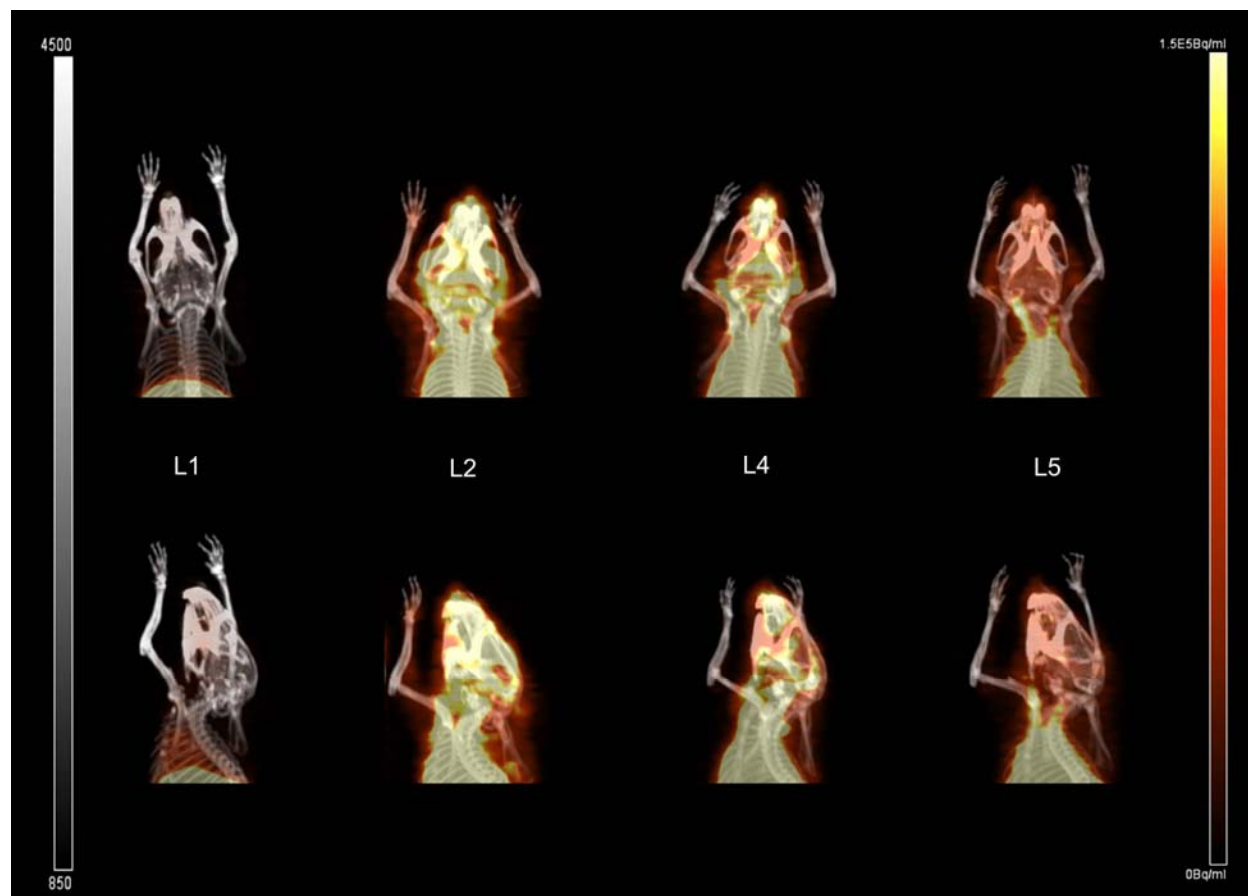


Figure S14. Representative fused PET/CT scans showing on the same scale the maximum intensity projections for ^{64}Cu -radiolabeled ligands L₁, L₂, L₄, and L₅ in Tg2576 transgenic mice.