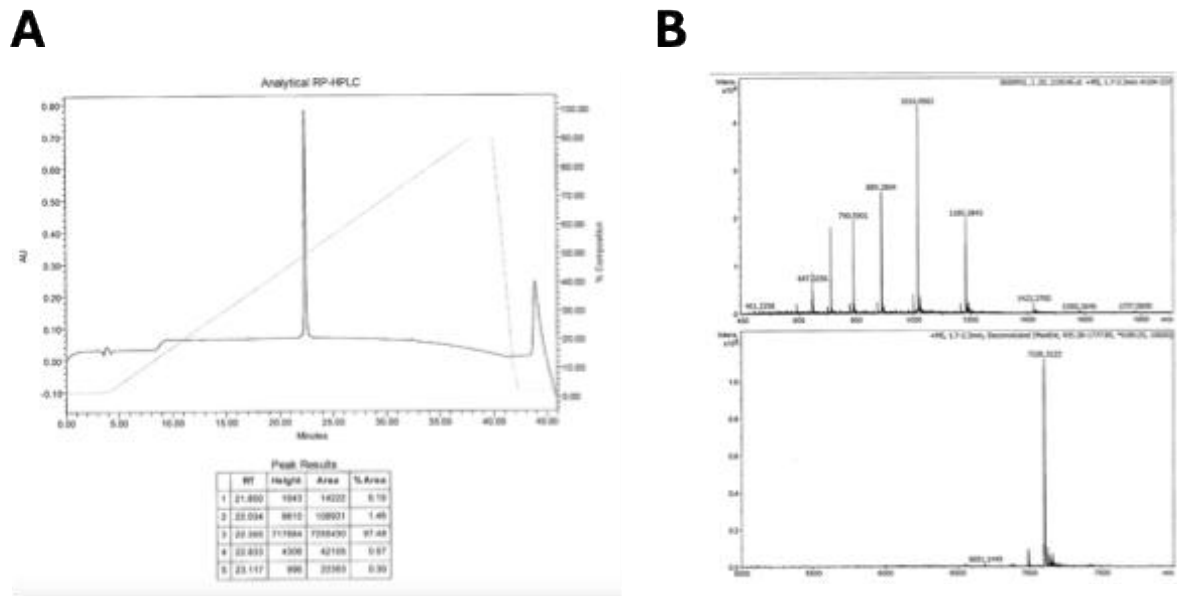


Supplementary Data

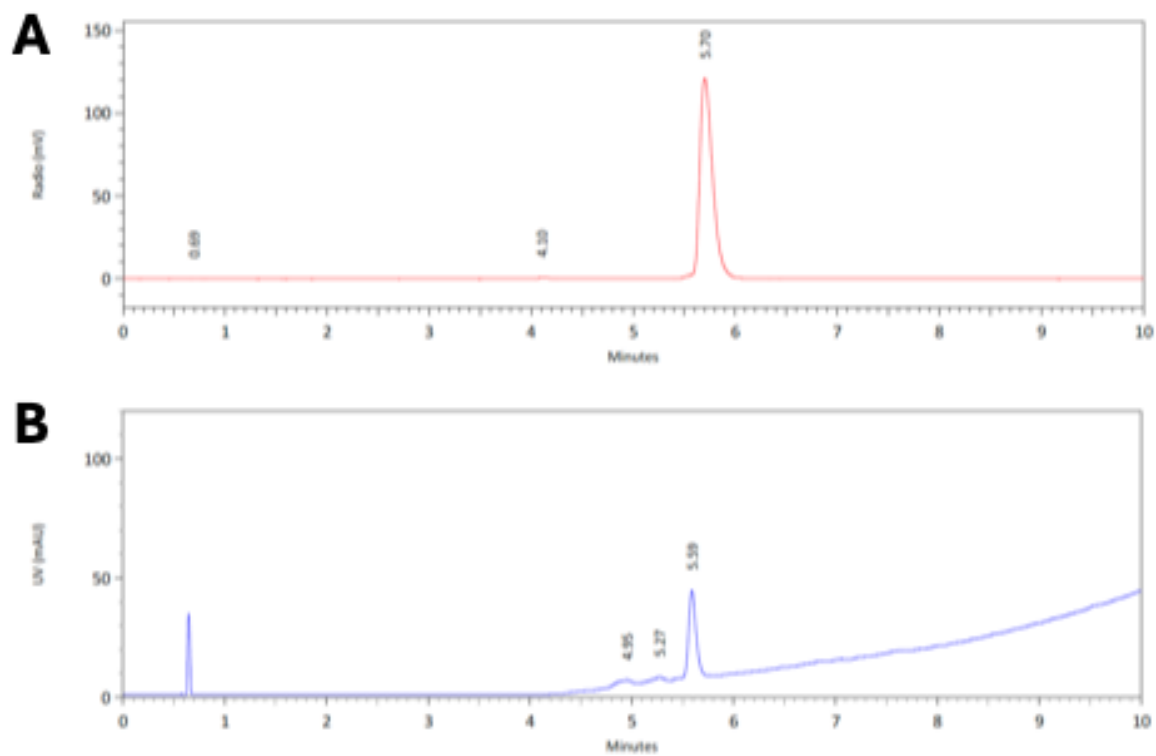
Positron Emission Tomography imaging of tumor necrosis factor in lung injury

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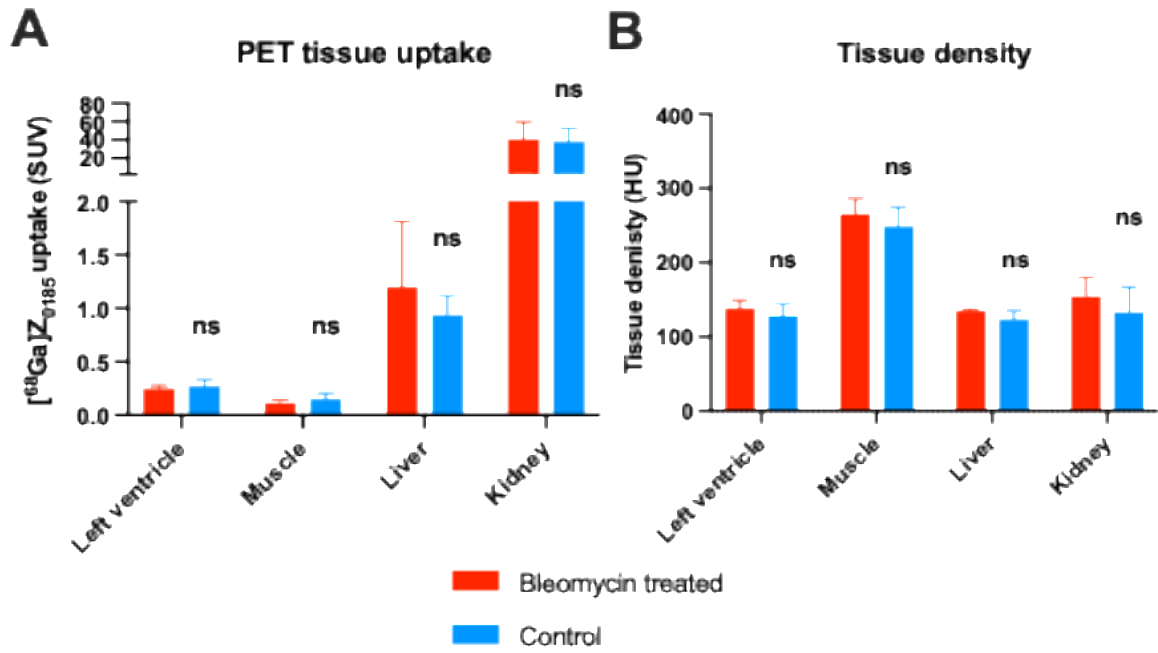
Supplementary Figures and Tables



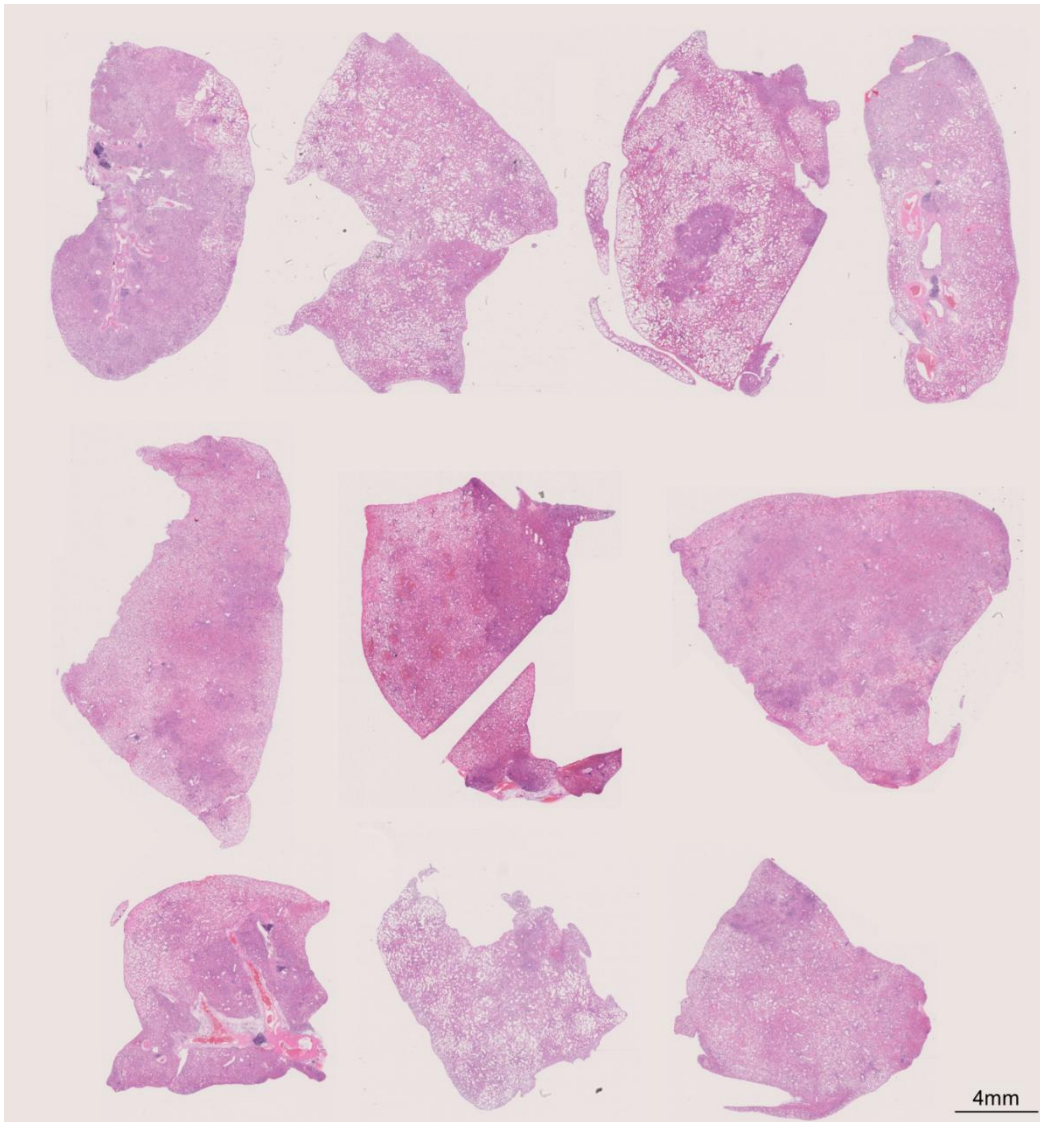
Supplementary Figure S1. (A) Purity of DOTA-Z₀₁₈₅ peptide precursor assessed by RP-HPLC. (B) Identity and molecular weight (7106 g/mol) confirmed by Mass Spectrometry (MS).



Supplementary Figure S2. Quality control of Gallium-68 radiolabeling of DOTA-Z₀₁₈₅ include (A) radio-chromatogram demonstrating excellent radiochemical purity and (B) similar retention time of the precursor peptide on UV (≈ 5.6 min).



Supplementary Figure S3. Uptake of $[^{68}\text{Ga}]\text{Zr}_{0185}$ in a selection of other major organs assessed by PET, showing no difference between bleomycin treated animals and healthy control animals (A). Tissue density in other major organs and tissues assessed by CT (B).



Supplementary Figure S4. Hematoxylin and eosin (HE) staining of lung tissue sections from $n = 10$ rats, 4 days after BLM instillation (40 \times magnification). The images illustrate inter-individual variability in lung injury severity among BLM-treated animals included in this study.

Table S1. Unpaired t-test comparing whole **lungs tracer uptake** extracted from the **ex vivo biodistribution** between **control (n=10)** and **BLM rats (n=12)** (related to **Figure 3B**).

| | Weight lungs Control | Weight lungs Bleomycin |
|----------------|-----------------------------|-------------------------------|
| N | 10 | 12 |
| mean | 0.071 | 0.071 |
| P value | 0.984 | |
| t, df | t=0.02, df=20 | |
| 95% CI | -0.023 to 0.023 | |

Table S2. Unpaired t-test with Welch's correction comparing **weight of lungs** between **control (n=10)** and **BLM rats (n=12)** (related to **Figure 3C**).

| | Weight lungs Control | Weight lungs Bleomycin |
|----------------|-----------------------------|-------------------------------|
| N | 10 | 12 |
| mean | 1.518 | 2.539 |
| P value | 0.0006 | |
| t, df | t=4.67, df=12.95 | |
| 95% CI | 0.548 to 1.494 | |

Table S3. Post-hoc **Tukey's multiple comparison test** comparing PET derived SUV_{mean} from the tracer in lungs from **healthy (n=6)** and **BLM rats (n=4)** (related to **Figure 4B**).

| Tukey's multiple comparisons test | Mean 1 | Mean 2 | n1 | n2 | q | DF | 95% CI of diff. | Adjusted P value |
|--|---------------|---------------|-----------|-----------|----------|-----------|------------------------|-------------------------|
| Control whole lungs vs. BML whole lungs | 0.25 | 0.43 | 6 | 4 | 2.61 | 11 | -0.44 to 0.08 | 0.200 |
| Control whole lungs vs. BLM Lesions | 0.25 | 0.58 | 6 | 4 | 4.77 | 11 | -0.59 to -0.07 | 0.016 |
| Bleomycin whole lungs vs. BLM Lesions | 0.43 | 0.58 | 4 | 4 | 1.97 | 11 | -0.43 to 0.14 | 0.379 |

Table S4. Post-hoc **Tukey’s multiple comparison test** comparing tissue density from lungs from **healthy (n=6) and BLM rats (n=4)** (related to **Figure 4C**).

| Tukey’s multiple comparisons test | Mean 1 | Mean 2 | n1 | n2 | q | DF | 95% CI of diff. | Adjusted P value |
|--|---------------|---------------|-----------|-----------|----------|-----------|------------------------|-------------------------|
| Control whole lungs vs. BML whole lungs | -185.3 | 8.8 | 6 | 4 | 3.72 | 11 | -393.5 to 5.334 | 0.057 |
| Control whole lungs vs. BLM Lesions | -185.3 | 105.5 | 6 | 4 | 5.57 | 11 | -490.2 to -91.40 | 0.006 |
| BLM whole lungs vs. BLM Lesions | 8.749 | 105.5 | 4 | 4 | 1.69 | 11 | -315.2 to 121.7 | 0.480 |