



Supplemental Figure 1. Specificity of ^{64}Cu -LLP2A uptake. (A) Representative CT, PET and fused PET/CT images of mice 2 days post intratracheal instillation of 40 μg lipopolysaccharide without (top row: non-blocked) or with (bottom row: blocked) co-administration of non-labeled LLP2A. Visual assessment demonstrates a marked decline in ^{64}Cu -LLP2A uptake in the inflamed lungs, indicating the specificity of uptake. (B) *In vivo* quantification of PET images confirms a significant reduction in lung uptake of ^{64}Cu -LLP2A uptake by non-labeled LLP2A (data are expressed as % SUV_{max} in the blocked relative to the non-blocked group). (C) The specificity of ^{64}Cu -LLP2A uptake is also confirmed by *ex vivo* biodistribution, which demonstrated a significant reduction in ^{64}Cu -LLP2A in inflamed lungs in the blocked group (data are expressed as the % uptake in the blocked relative to the non-blocked group). Notably, ^{64}Cu -LLP2A was markedly decreased by co-administration of non-labeled compound in spleen, thymus, and bone where abundant VLA-4 expressing immune or hematopoietic cells reside. N = 4 in the non-blocked group and = 3 in the blocked group. **P* < 0.05, ***P* < 0.01, and ****P* < 0.001 compared to the non-blocked group.

Supplemental Table 1. List of TaqMan primers used for quantitative RT-PCR.

Species	Assay name	Gene full name	Assay ID
Mouse	<i>Cd68</i>	CD68	Mm03047343_m1
	<i>Il1b</i>	IL-1 β	Mm00434228_m1
	<i>Il12</i>	IL-12	Mm00434174_m1
	<i>Itga4</i>	integrin α_4	Mm01277951_m1
	<i>Itgb1</i>	integrin β_1	Mm01253230_m1
	<i>Ly6g</i>	Ly6G	Mm04934123_m1
	<i>Mpo</i>	Myeloperoxidase	Mm01298424_m1
	<i>Nos2</i>	nitric oxidase synthase-2	Mm00440502_m1
	<i>Rn18s</i>	18S ribosomal RNA	Mm03928990_g1
	<i>Tnf</i>	tumor necrosis factor- α	Mm00443258_m1

Supplemental Table 2. List of antibodies used for immunostaining.

Antibody	Clone	Source	Incubation time
anti-mouse CD11b	M1/70	BioLegend	60 min
anti-mouse CD68	FA-11	Bio-Rad Laboratories	60 min
anti-mouse Ly6G	1A8	BioLegend	60 min
anti-mouse CD49d	9C10	BioLegend	60 min
Cy3-conjugated anti-rat IgG	712-165-153	Jackson ImmunoResearch	45 min