Model Particulate Drug Carriers Modulate Leukocyte Adhesion in Human Blood Flows

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Supporting Information

Pages in Supporting Information: 9
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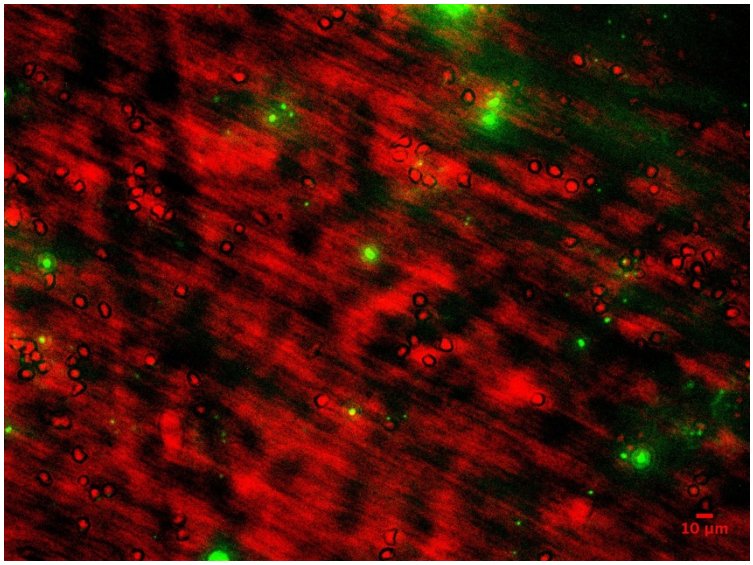
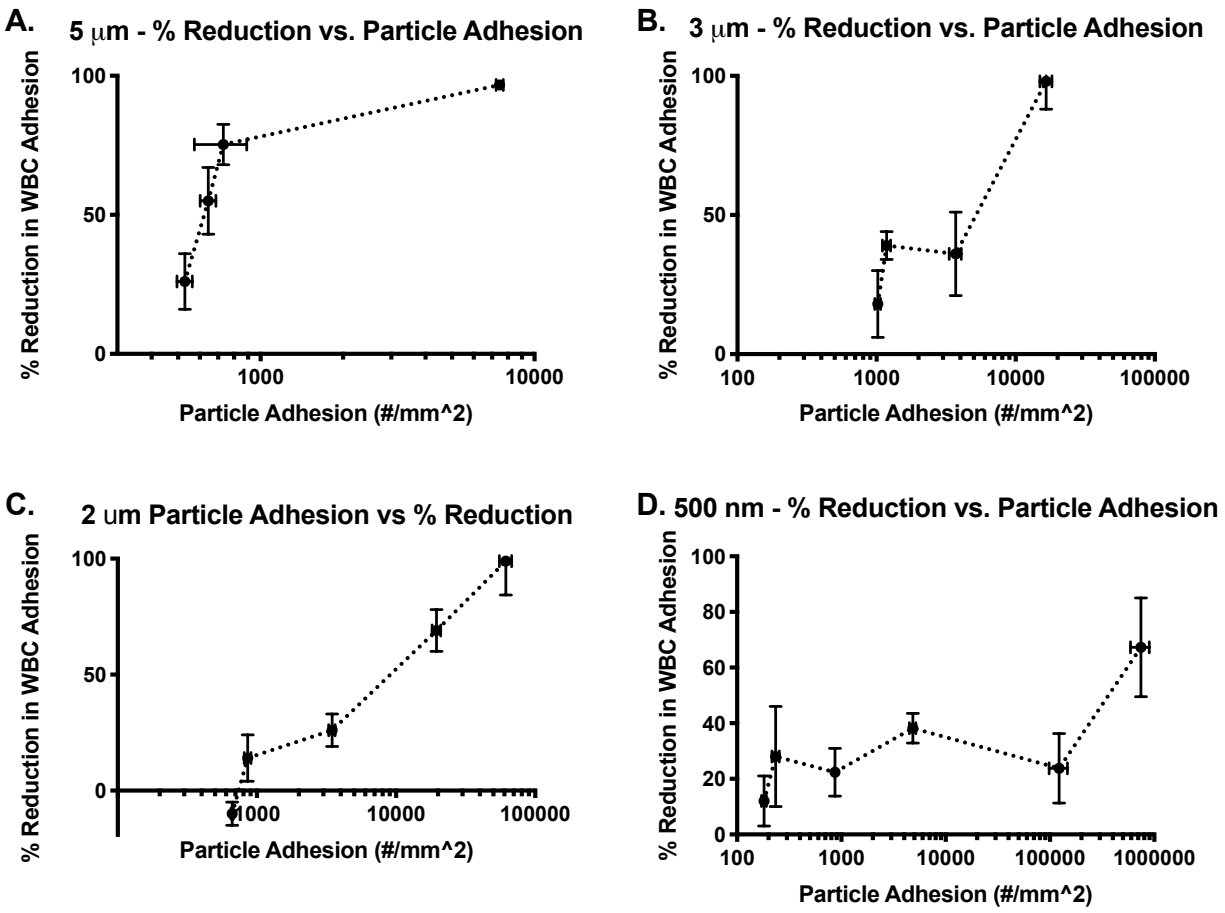
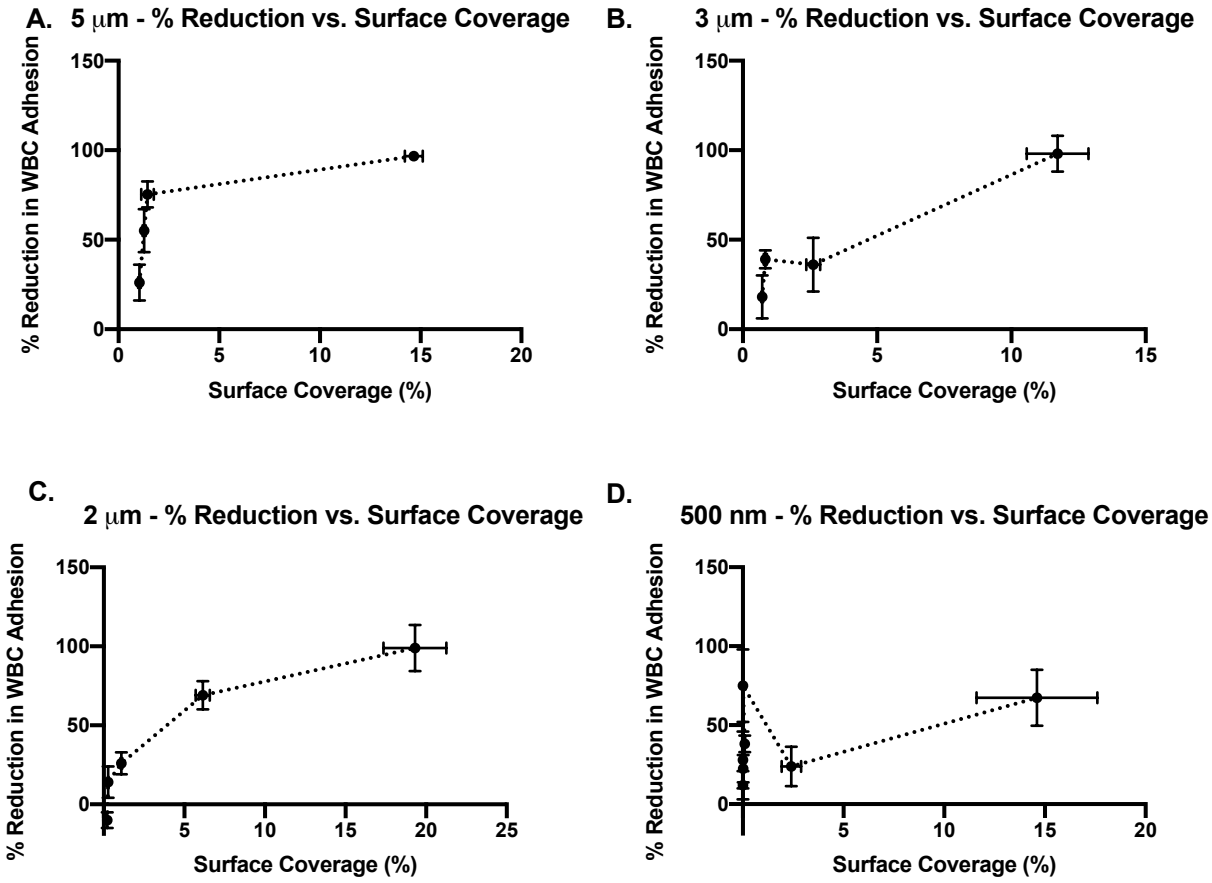
Supporting Information



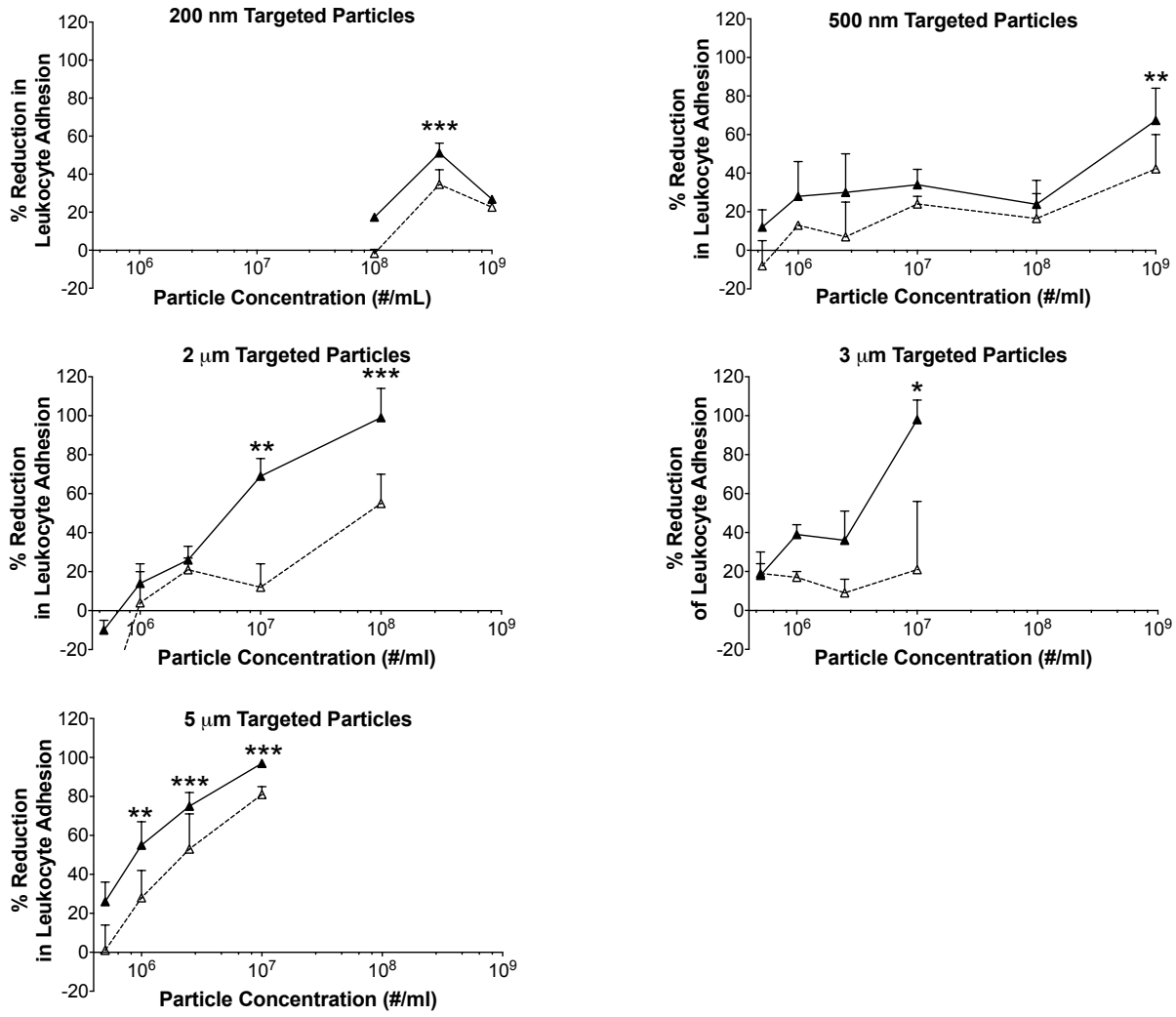
Supplemental Figure 1. Microscope image of 500 nm IgG-conjugated fluorescent particles co-localizing with neutrophils on an inflamed endothelium. Red = CD45-PE, green = FITC particles.



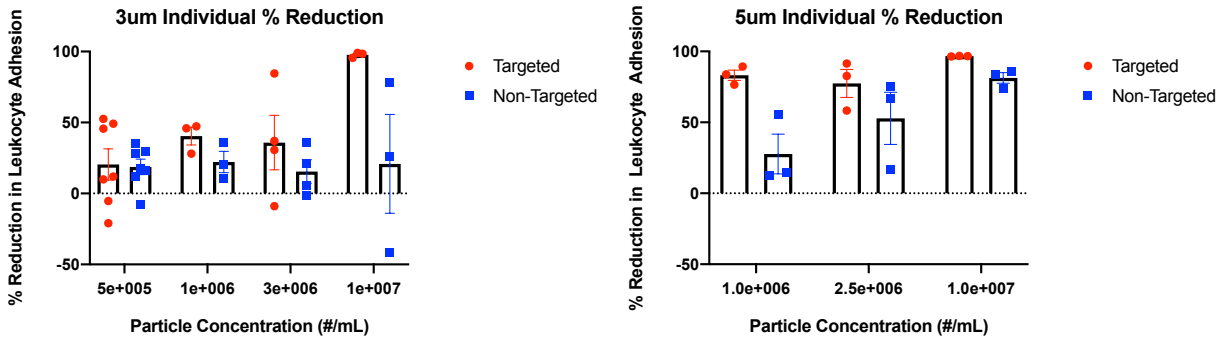
Supplemental Figure 2. Particle Adhesion versus Percent Reduction in Leukocyte Adhesion. (a) Particle Adhesion vs. % Reduction in Leukocyte Adhesion for 5 μm particles. (b) Particle Adhesion vs. % Reduction in Leukocyte Adhesion for 3 μm particles. (c) Particle Adhesion vs. % Reduction in Leukocyte Adhesion for 2 μm particles. (d) Particle Adhesion vs. % Reduction in Leukocyte Adhesion for 200 nm particles. Each data point represents at least 3 independent donors. Error bars are standard error.



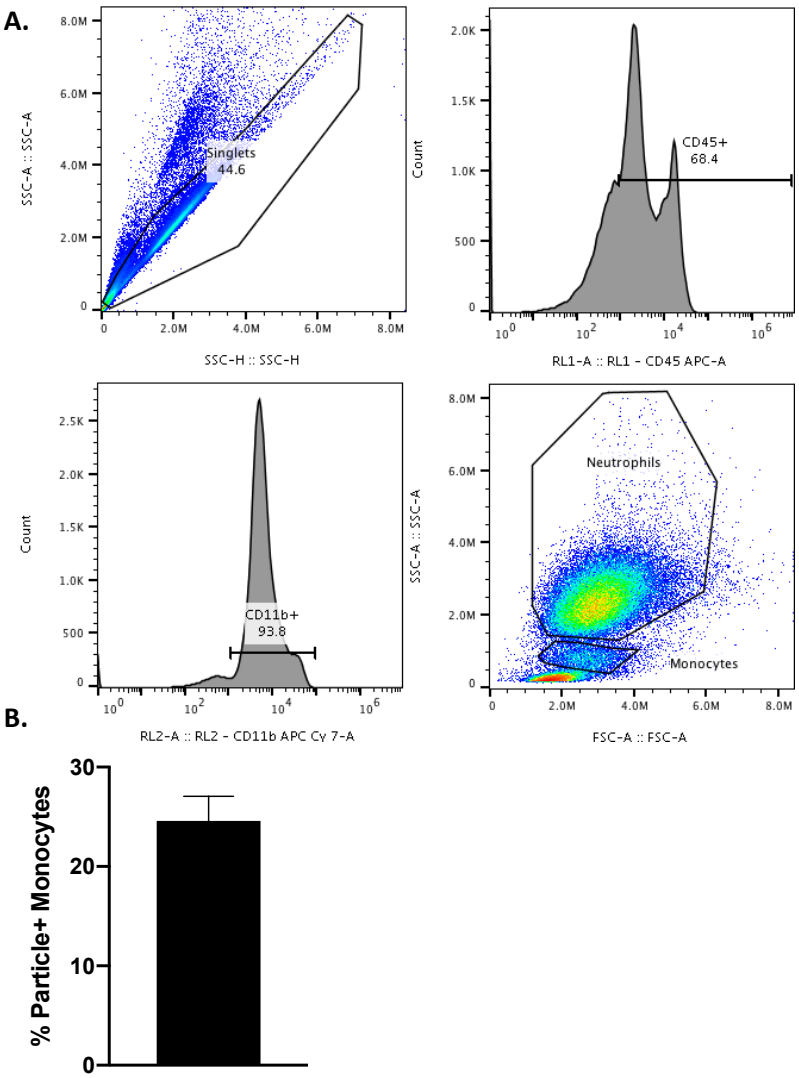
Supplemental Figure 3. Surface Coverage versus Percent Reduction in Leukocyte Adhesion. (a) Surface Coverage vs. % Reduction in Leukocyte Adhesion for 5 μm particles. (b) Surface Coverage vs. % Reduction in Leukocyte Adhesion for 3 μm particles. (c) Surface Coverage vs. % Reduction in Leukocyte Adhesion for 2 μm particles. (d) Surface Coverage vs. % Reduction in Leukocyte Adhesion for 500 nm particles. Each data point represents at least 3 independent donors. Error bars are standard error.



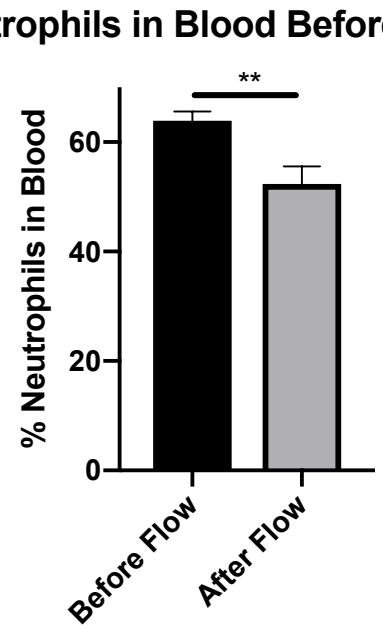
Supplemental Figure 4. Percent Reduction in Leukocyte Adhesion versus Particle Concentration for Targeted and Non-Targeted Particles



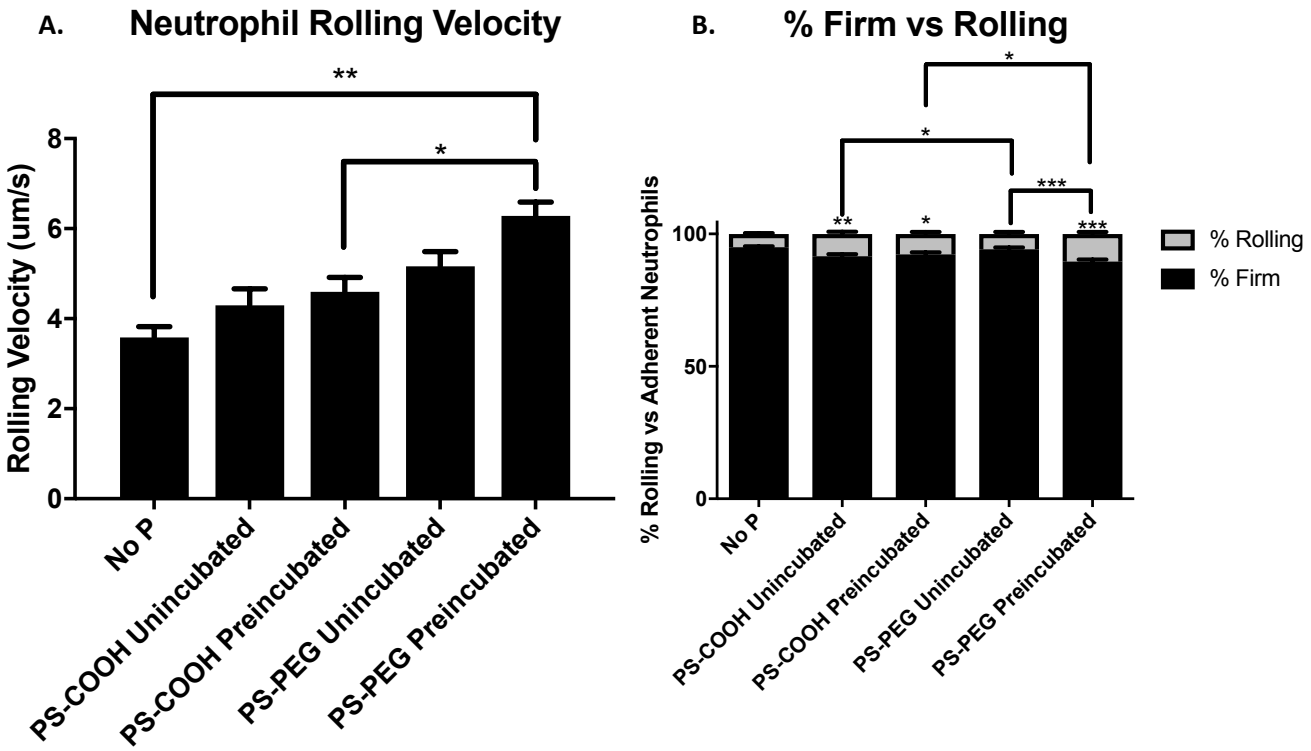
Supplemental Figure 5. Individual trial results showing % reduction in leukocyte adhesion for 3 μm and 5 μm particles.



Supplemental Figure 6. Flow Cytometry Analysis of Monocyte Particle Phagocytosis in Whole Blood *ex vivo*. (a) Gating (right to left, top to bottom) for differentiating neutrophils from monocytes in whole blood samples. (b) Percent particle positive monocytes in whole blood after incubating for 2 hours with 2 μm particles at a concentration of 1E7/mL. Error bars represent standard error for three separate donors, repeated in duplicate.



Supplemental Figure 7. Flow Cytometry Analysis of Neutrophils in Whole Blood Before and After Flow Experiments.



Supplemental Figure 8. Impact of Particle Internalization on Neutrophil Rolling Velocity and Firm Adherence in Laminar Flow. (a) Neutrophil rolling velocity on an inflamed endothelium with and without particle internalization for 2 μm PS-COOH and PS-PEG particles introduced at a concentration of 1E7/mL, measured by tracking leukocytes through 10-second videos. (b) Percentage of firmly adherent versus rolling neutrophils with and without particle internalization for 2 μm PS-COOH and PS-PEG particles introduced at a concentration of 1E7/mL, as measured by manually counting the number of rolling versus firmly adherent neutrophils in 10-second videos. (*) directly above a bar indicates significant difference from the untreated ("No P") condition, while other significance bars indicate significance between those two conditions ($p<0.05$). Statistical analysis was performed using one-way ANOVA using GraphPad Prism software. $n\geq3$ donors for each condition.