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# Supplementary Materials for

## Biomimetic anisotropic polymeric nanoparticles coated with red blood cell membranes for enhanced circulation and toxin removal

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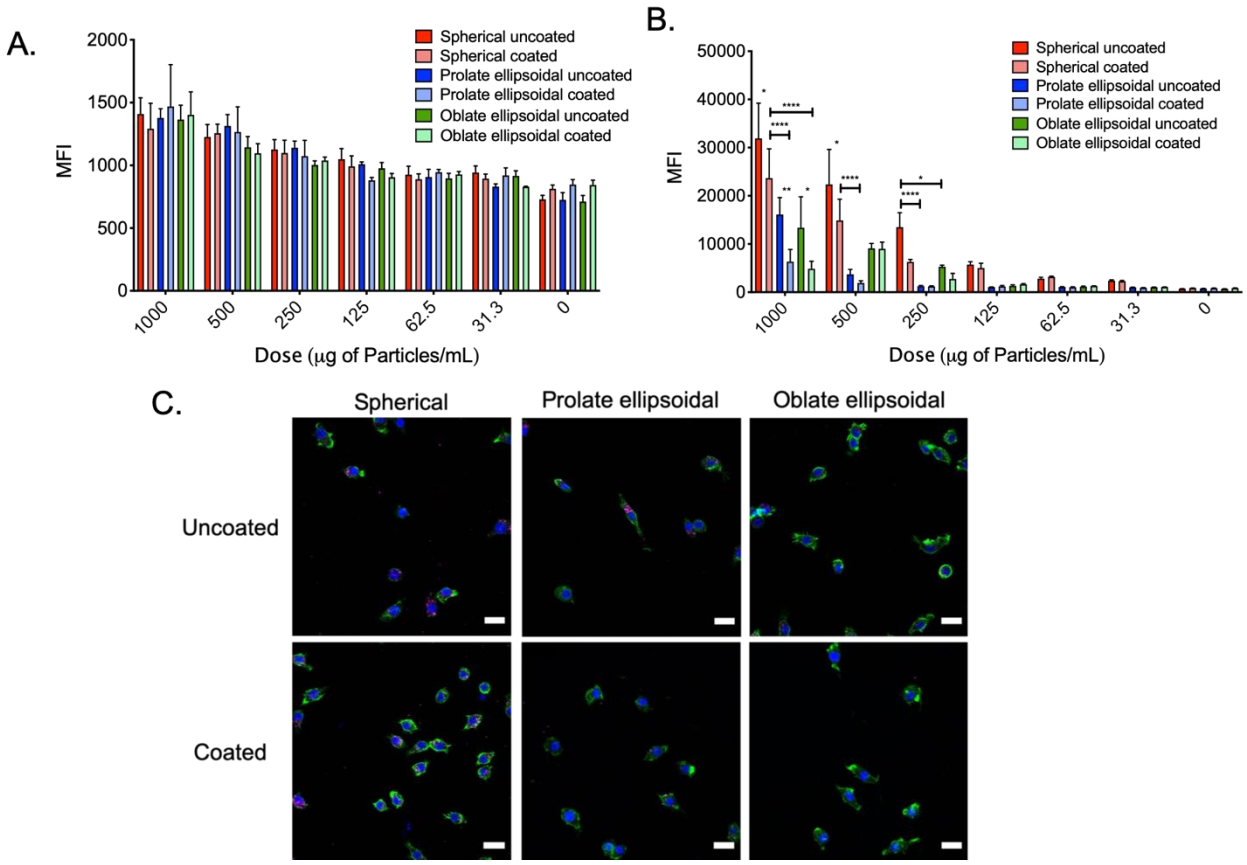


**Fig. S1. *In vitro* macrophage uptake of particles.** Fluorescent nanoparticles were incubated with RAW 264.7 macrophages for 30 minutes (A) or 1 hour (B) and uptake was analyzed by flow cytometry. There were no significant differences in uptake, as measured by geometric mean fluorescence, at 30 minutes. However, at 1 hour, uptake was significantly reduced at higher doses as a result of anisotropy and membrane coating. (C) Macrophage uptake of nanoparticles (pink) was visualized by confocal imaging. Macrophages were stained for nuclei (blue) and actin (green). Scale bar = 20 μm. Data is shown as mean ± SEM (n = 4 replicates). Statistics were performed by a two-way ANOVA with Bonferroni's post tests (*$P < 0.05$, **$P < 0.01$, *** $P < 0.001$, and **** $P < 0.0001$).

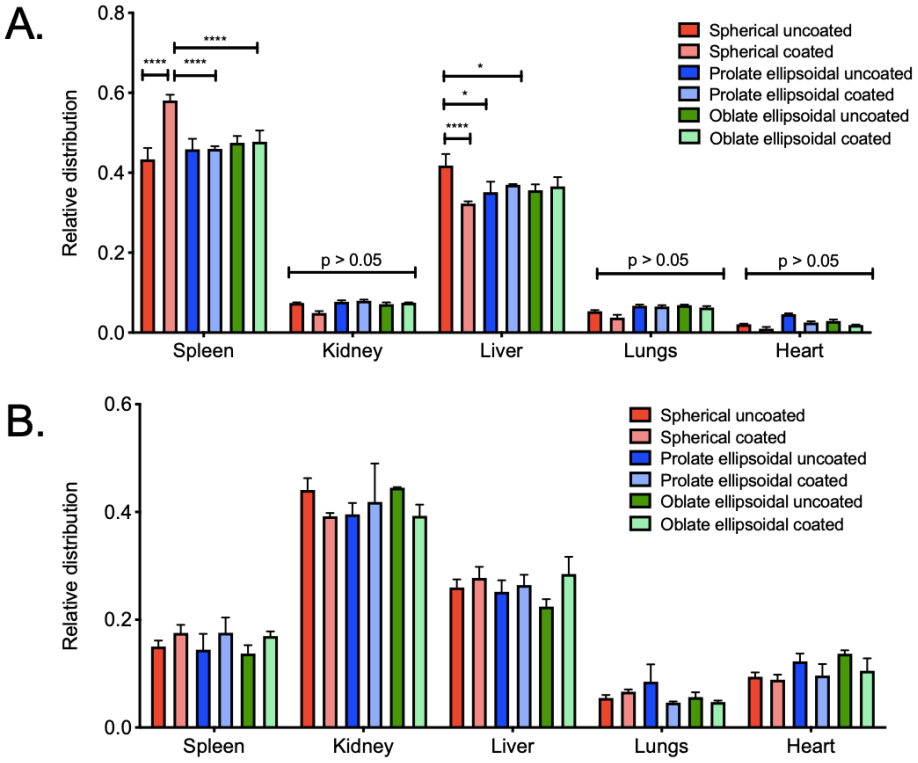


**Fig. S2. Organ biodistribution of nanoparticles.** Mice were sacrificed 4 hours (A) or 72 hours (B) after i.v. administration of IR-labelled particles and major organs were dissected out and imaged. Fluorescent content in each organ was assessed and normalized to total fluorescent content for each animal (n=3 mice/group). There was no significant difference in particle accumulation between groups in each organ at 72 hours. Data is shown as mean ± SEM (n = 3 mice/group). Statistics were performed by a one-way ANOVA with post hoc Tukey's test (*$P < 0.05$, **$P < 0.01$, *** $P < 0.001$, and **** $P < 0.0001$).

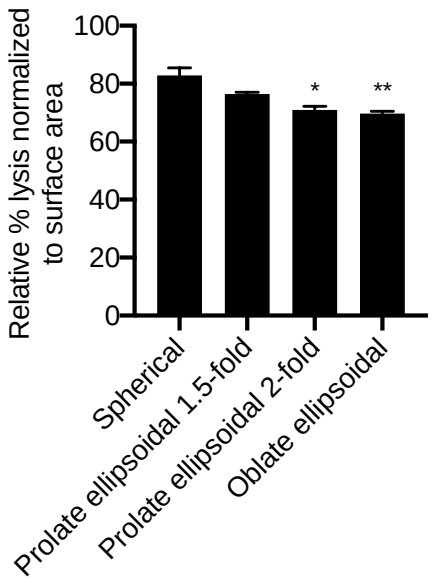


**Fig. S3. *In vitro* evaluation of toxin absorption by RBC-coated nanoparticles normalized to relative surface area.** The relative percent lysis was normalized to total particle surface area to account for the greater available surface area of anisotropic nanoparticles. When normalized to surface area, the anisotropic nanoparticles have similar efficacy to spherical nanoparticles, with the prolate ellipsoidal 2-fold stretched and oblate ellipsoidal particles being slightly more effective than the spherical particles. Data is shown as mean ± SEM (n = 4 replicates). Statistics were performed by a one-way ANOVA with post hoc Tukey's test (*$P < 0.05$, **$P < 0.01$, *** $P < 0.001$, and **** $P < 0.0001$).