

Supplementary Materials

Hematite Nanoparticles from Unexpected Reaction of Ferrihydrite with Concentrated Acids for Biomedical Applications

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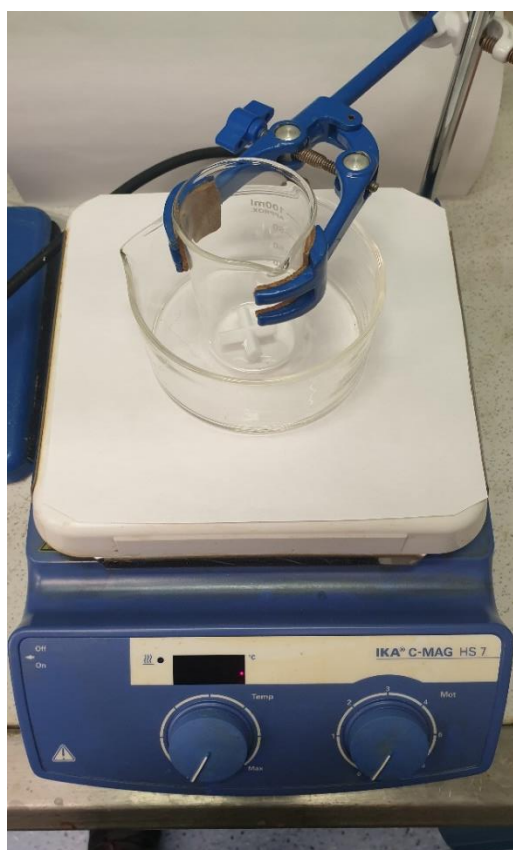


Figure S1. Experimental setup.

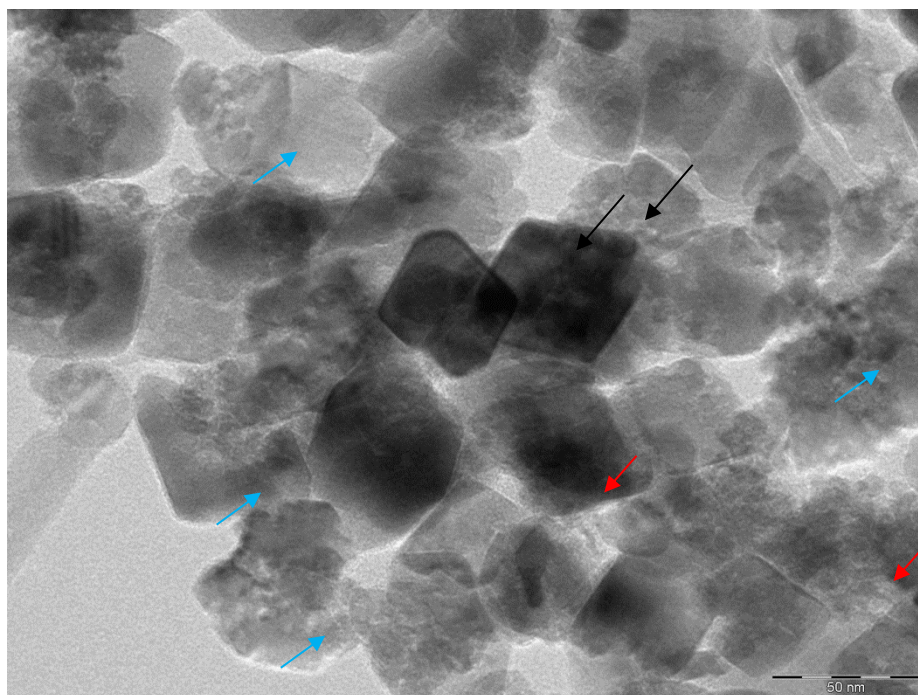


Figure S2. TEM images of nanoparticles with different shape and morphology: hexagonal bipyramid (black arrows) and rhombohedral shapes (red arrows), particles with full or partly irregular surface morphology (blue arrows).

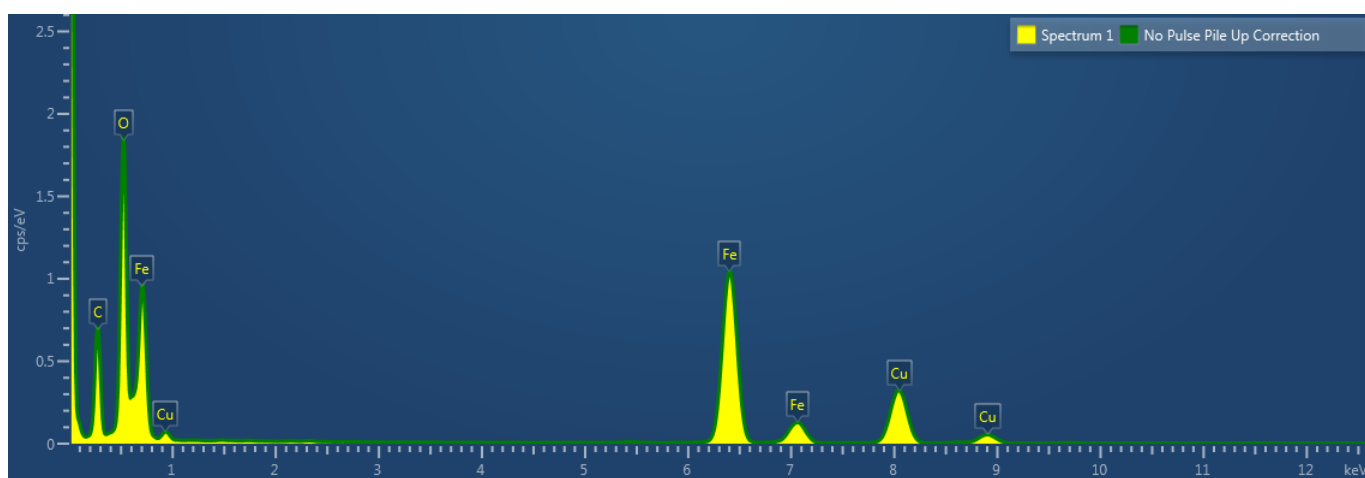
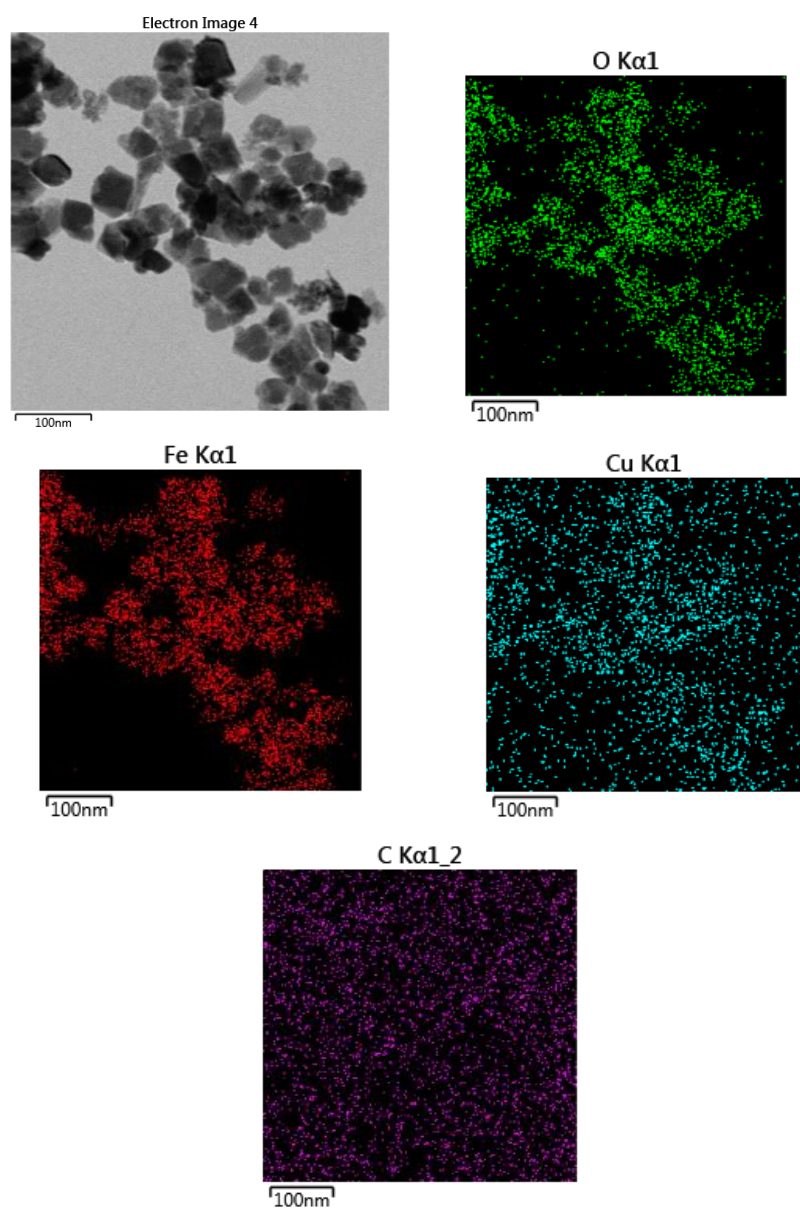


Figure S3. EDX analysis of the NPs. ~Distribution of the elements is shown by different colors: O – green, Fe – red, Cu – blue, C – purple (each insert is additionally signed on top). Peaks of carbon and copper are from the TEM grid.

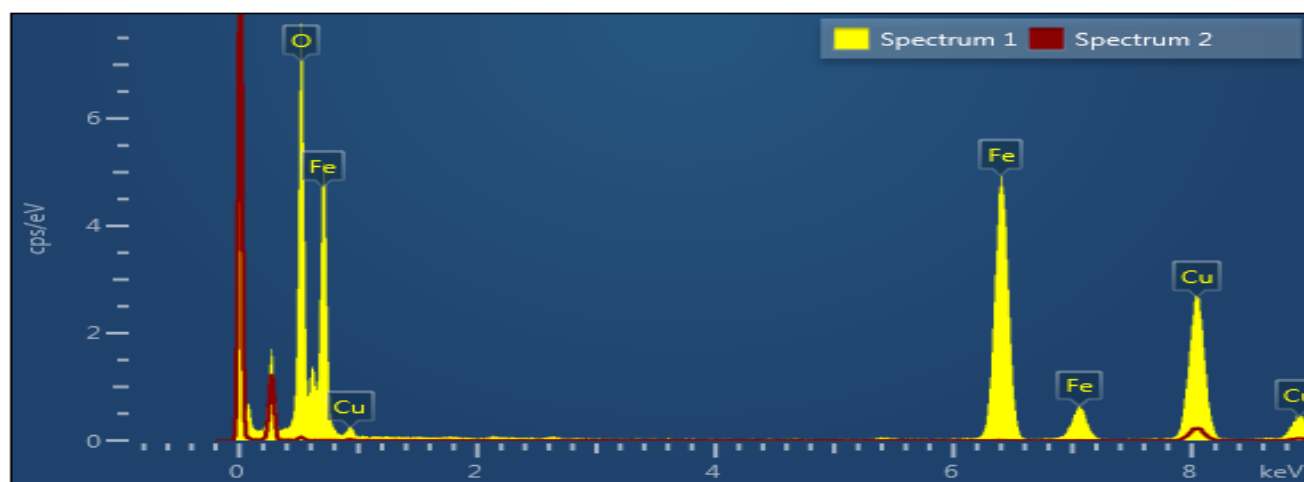
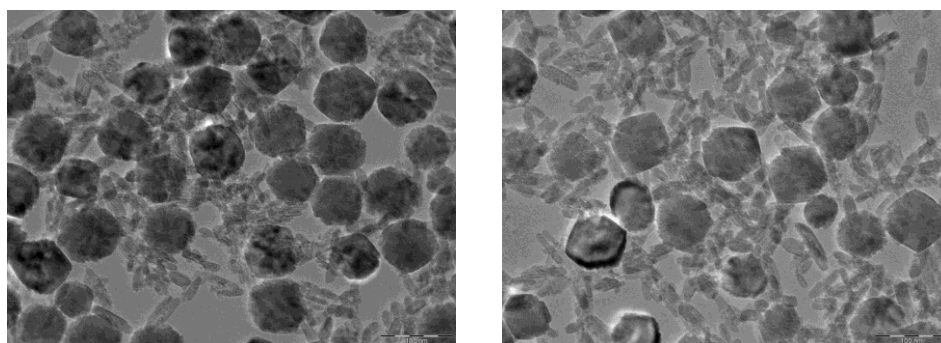


Figure S4. EDX analysis of hematite prepared by a well-established procedure.

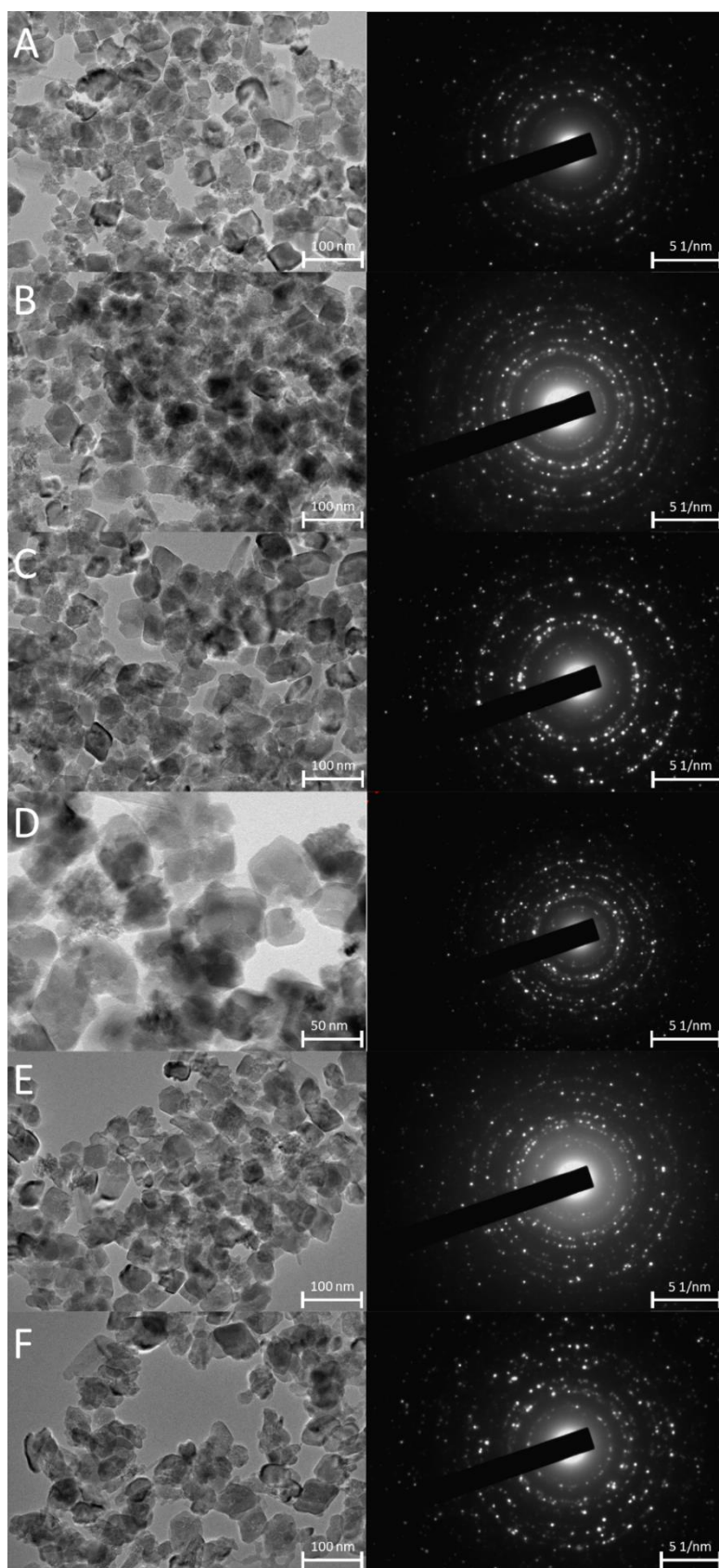


Figure S5. TEM and SAED images of nanoparticles fabricated using different concentrated acids: (a) Acetic acid; (b) Nitric acid; (c) Hydrochloric acid; (d) Sulfuric acid; (e) Phosphoric acid; (f) Sulfuric acid and phosphorus pentoxide.

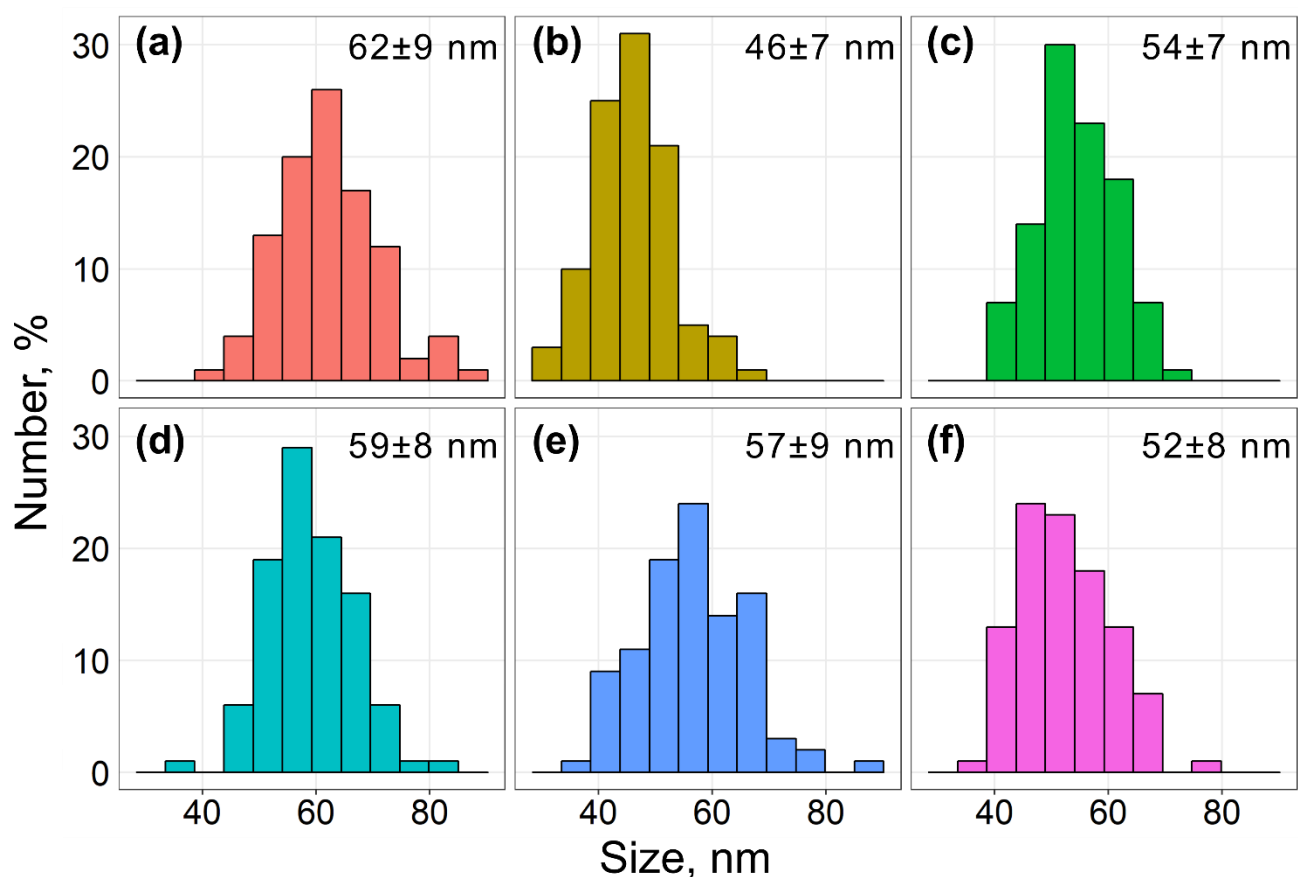


Figure S6. Size distribution of the NPs synthesized using different acids: (a) Sulfuric acid; (b) Nitric acid; (c) Acetic acid; (d) Phosphorus acid; (e) Hydrochloric acid; (f) Mixture of sulfuric acid and phosphorous pentoxide. The size was measured using SEM images; each NP's size was calculated as average of its maximum and minimum size. The values are presented as mean \pm standard deviation ($n=100$). The images were processed using the Fiji/ImageJ software.

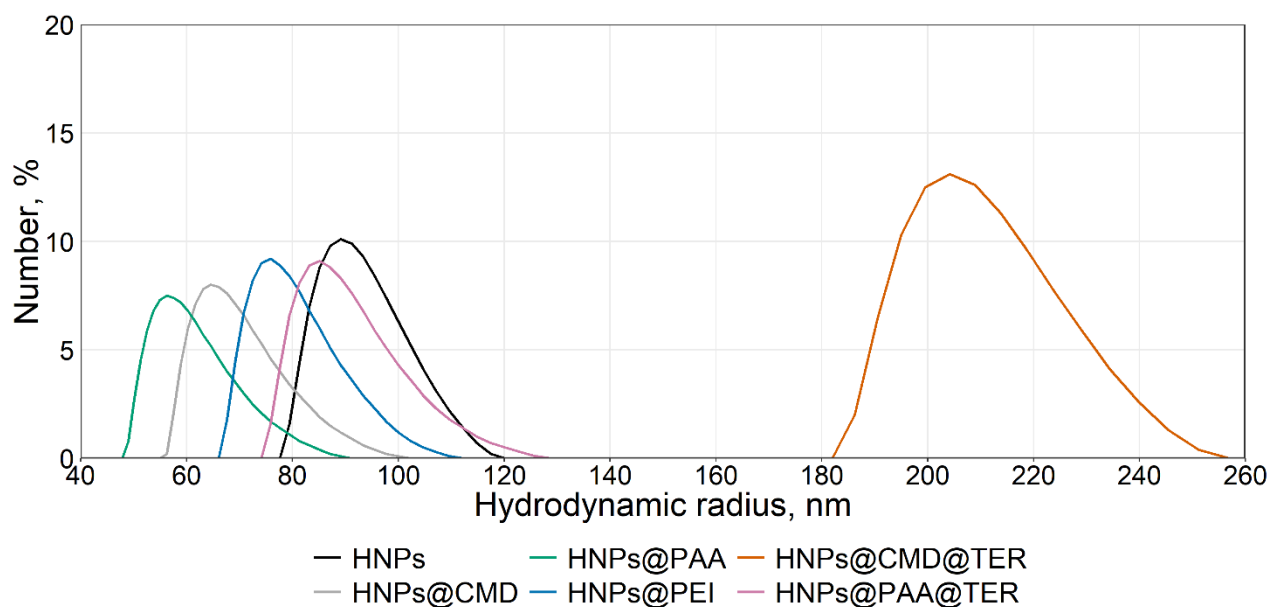


Figure S7. Hydrodynamic radii of synthesized nanoparticles according to DLS analysis.

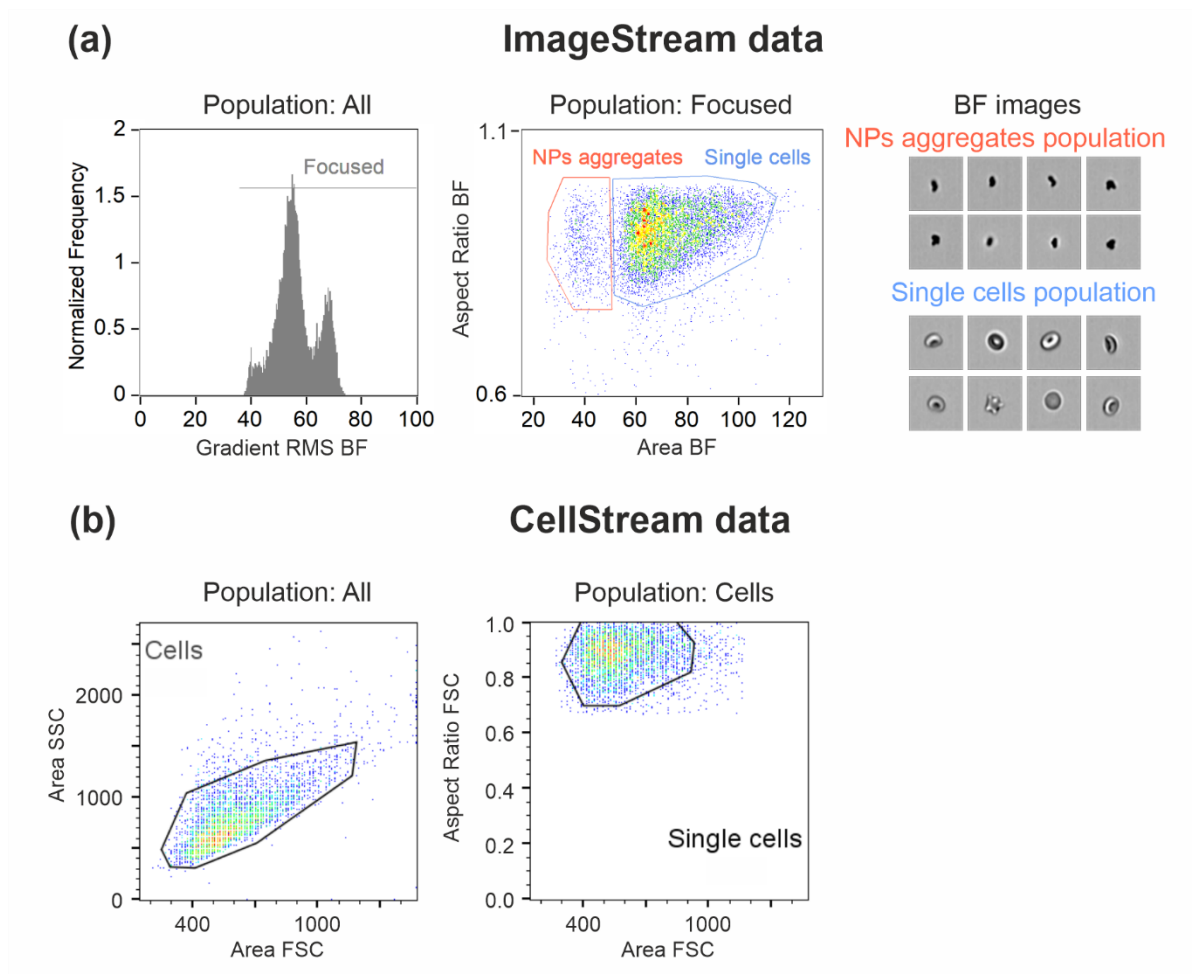


Figure S8. Gating strategy. **(a)** For the ImageStream flow cytometer experiments with erythrocyte targeting (an example is shown for the RBCs with HNPs@CMD@Control Ab); **(b)** For the CellStream flow cytometer experiments with BT-474 and CHO cell targeting (an example is shown for the BT-474 cells with HNPs@PAA@Trastuzumab-Cy3).