

SUPPORTING INFORMATION

A Mixed Stimuli-Responsive Magnetic and Gold Nanoparticle
System for Rapid Purification, Enrichment, and Detection of
Biomarkers

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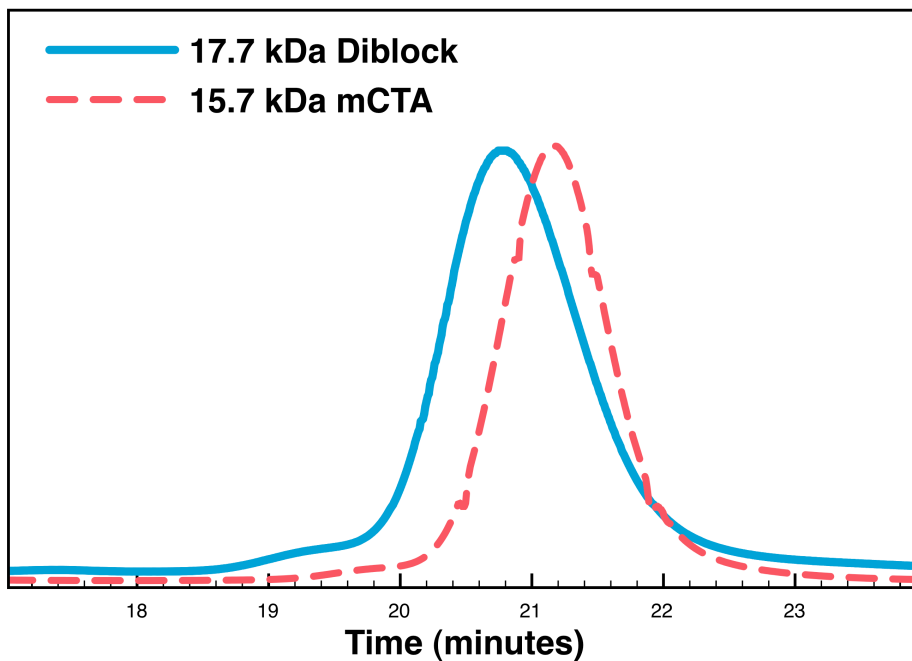
SUPPORTING INFORMATION CONTENTS

Figure S1. Refractive index GPC traces of mCTA and diblock copolymers.

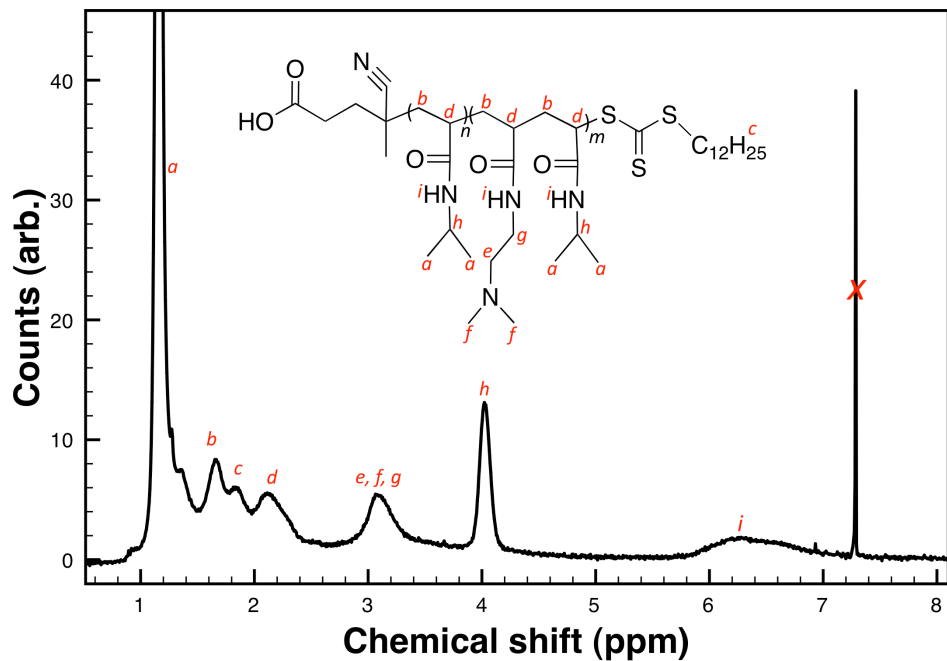
Figure S2. Proton NMR spectroscopy of the diblock copolymer.

Figure S3. Quantitation of biotinylation efficiency by HABA assay.

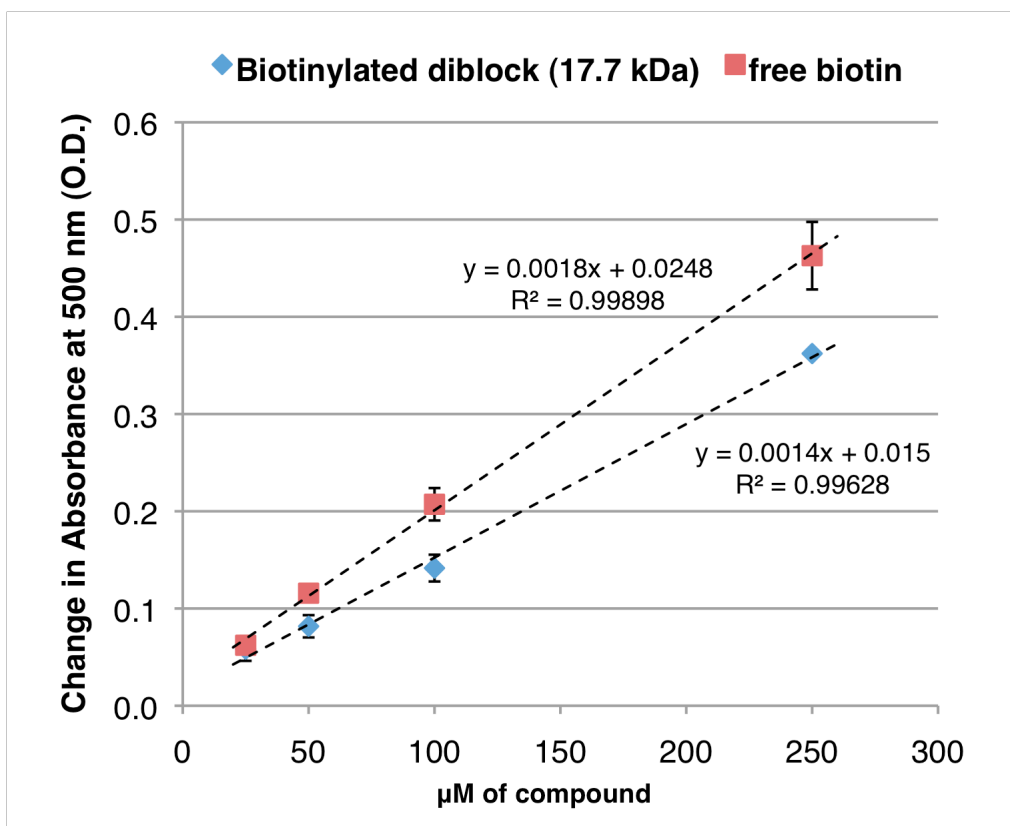
Figure S4. Time-lapse images of mNP/AuNP co-aggregation and separation process.



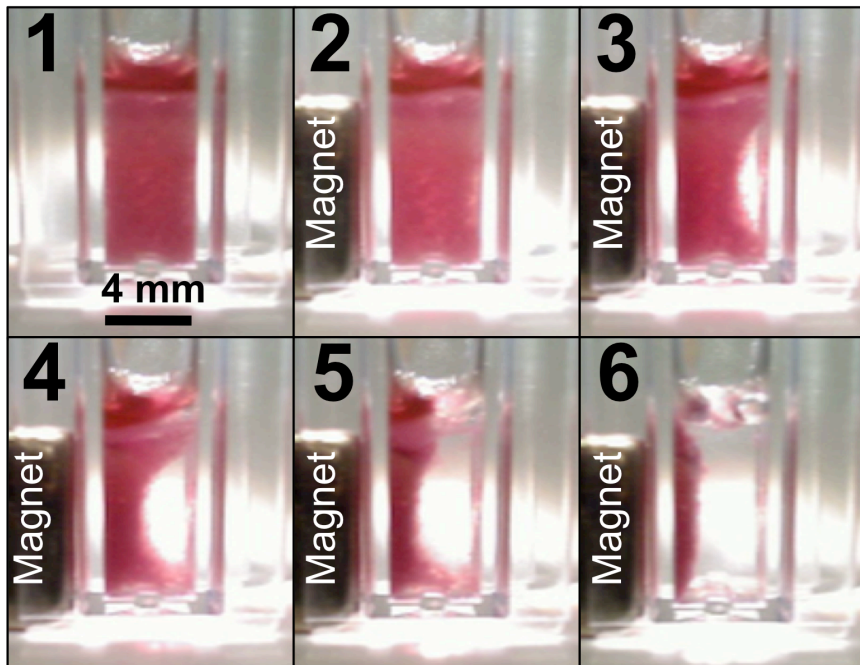
Supporting Figure S1. Refractive index GPC traces showing the molecular weight distributions of the 15.7 kDa mCTA (red, dashed), and the 17.7 kDa diblock copolymer (blue, solid).



Supporting Figure S2. ¹H-NMR (300 MHz in CDCl₃) of the 17.7 kDa diblock copolymer before biotinylation (compound (2) in Figure 2).



Supporting Figure S3. Quantitation of biotinylation efficiency. HABA dye-displacement assay on the 17.7 kDa biotinylated diblock copolymer was performed with free biotin as a standard reference. The biotinylation efficiency was found to be ~78%.



Supporting Figure S4. Video stills of dual AuNP/mNP co-aggregation and magnetic separation. For the purposes of the video, the sample comprised 250 μL of the AuNP/mNP/homo-pNIPAAm mixture in PBS buffer. 250 μL of 5M NaCl was used to trigger the pNIPAAm phase transition seconds before image 1 was acquired. The magnet was then applied for a total of 20 minutes. Comparable magnetic separation behavior was observed for mixtures that were co-aggregated using a thermal stimulus. The AuNP particle capture efficiency was evaluated by measuring the absorbance at 530 nm before and after magnetic capture and resuspension into an equal volume of fluid below the LCST. Typical nanoparticle capture efficiencies from 50% human plasma were found to be 75-85%.