Magnetic Relaxation-Based Platform for Multiplexed Assays

Yibo Ling [a,b], Christophoros C. Vassiliou [b], Michael J. Cima [c,d]*

[a] Harvard-MIT Division of Health Sciences & Technology, Cambridge, MA

[b] Department of Electrical Engineering & Computer Science, Massachusetts Institute of Technology, Cambridge, MA

[c] The David H. Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology, Cambridge, MA

[d] Department of Materials Science & Engineering, Massachusetts Institute of Technology, Cambridge, MA

SUPPLEMENTAL MATERIAL

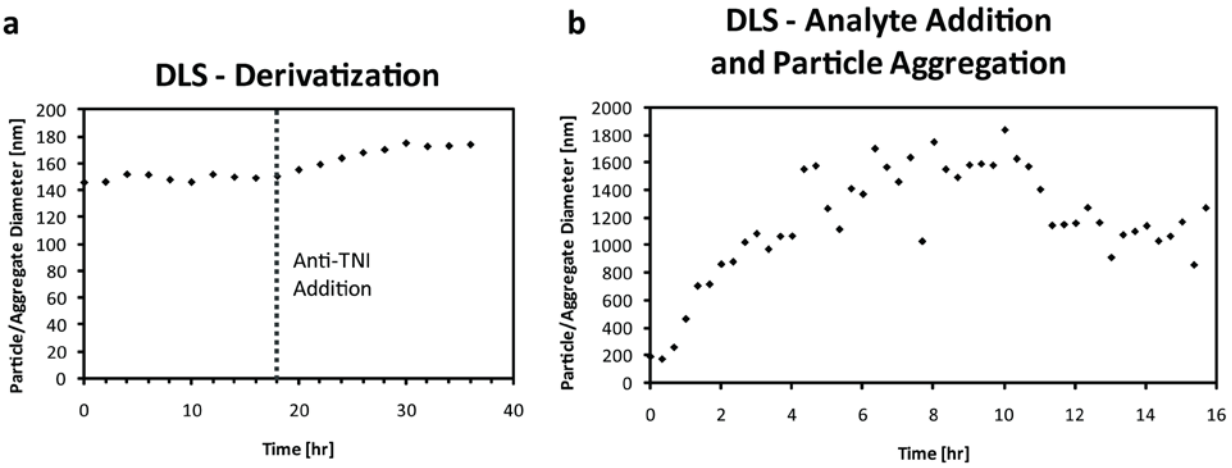

Figure S1: Dynamic light scattering (DLS) measurements of particle derivatization and aggregation. a) At 18 hr, anti-TNI was added to NM-[aGoat]; the mean diameter of the particle population clearly increases after 18 hr and steadies out after ~20 hr. b) TNI analyte was added to NM-[aGoat]-[aTNI] particles at the initial time point. Particle/aggregate size increases initially from 200 nm to upwards of 1600 nm but then begins to decrease after about 10 hr. This decrease in mean diameter is consistent with a loss of colloidal stability and sedimentation of the larger aggregates, leaving the smaller aggregates in solution.

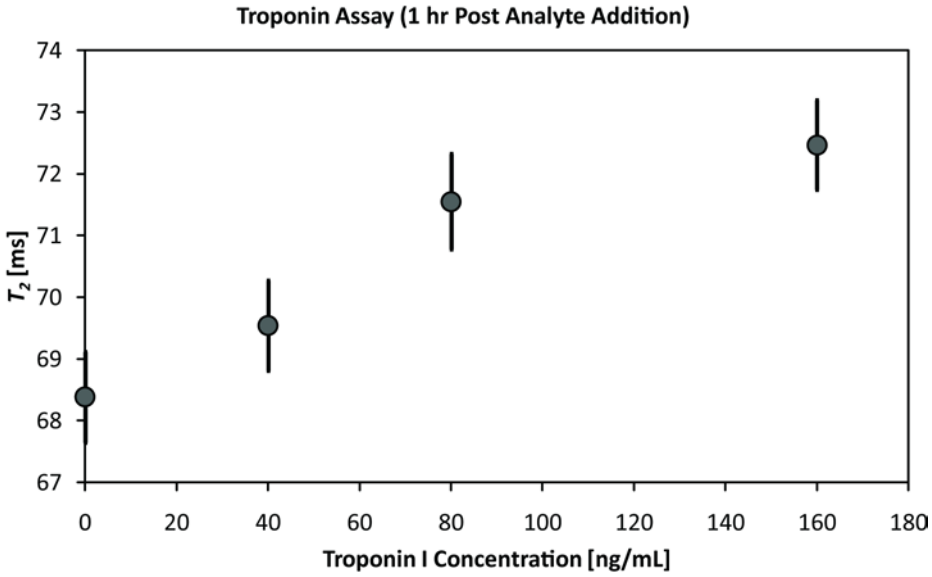

Figure S2: The T_2 response of a troponin assay at 1 hr after analyte addition. The change in T_2 is not as pronounced as it is after 12 hr. n=3.

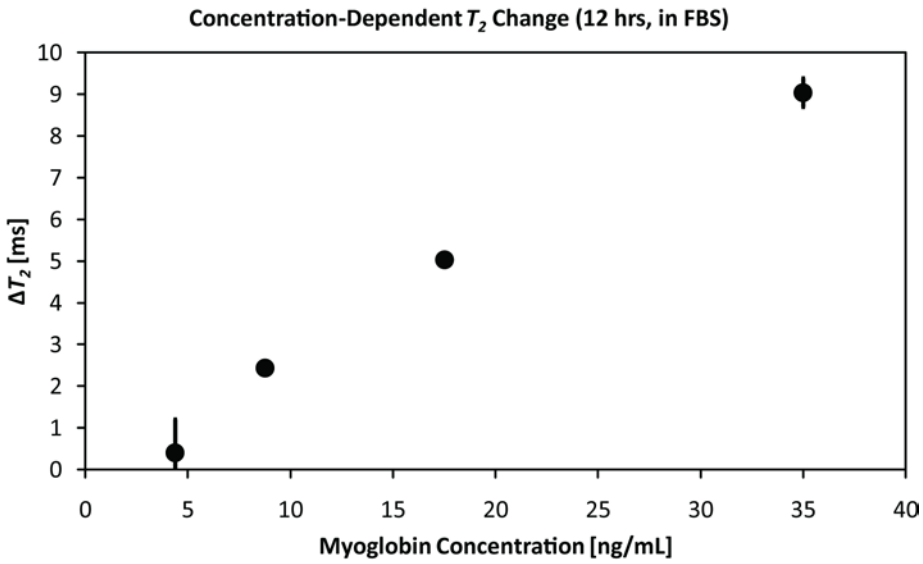

Figure S3: The T_2 response of NM-[aGoat]-[aMyo] shows a concentration dependent change in the presence of 50% FBS. n=3.

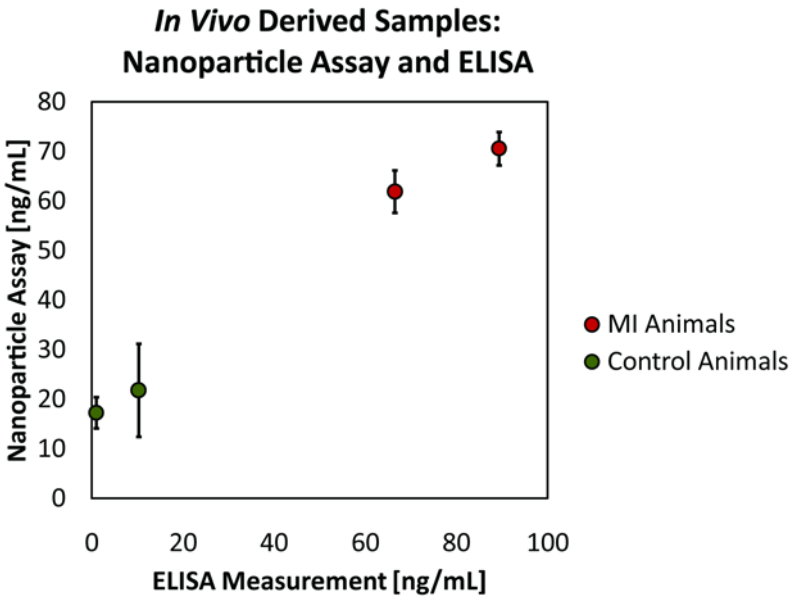

Figure S4: Myoglobin measurements made using the nanoparticle assay and ELISA on *in vivo* derived serum samples that were diluted 10X in PBS/BSA. n=3. NM-[aGoat] particles without aMyo secondary antibodies were used for comparison (data not shown) and exhibited no T_2 response when used to assay the control serum samples. The higher levels shown in the nanoparticle assay when compared to ELISA for the control condition may therefore be explained by possible cross-reactivity of the aMyo secondary antibodies.