Supplemental _ Figure 1

"Measuring the Grafting Density of Nanoparticles in Solution by Analytical Ultracentrifugation and Total Organic Carbon Analysis" by Denise N. Benoit, Huiguang Zhu, Michael H. Lilierose, Raymond A. Verm, Naushaba Ali, Adam N. Morrison, John D. Fortner, Carolina Avendano, and Vicki L. Colvin.

Figure S1 shows that variations in the grafting density for three batches of polymer coated gold nanoparticles are on average ~7.5 times greater than the variation in replicate analysis of a single batch. The AUC and TOC grafting densities for a single batch of 9.1 nm gold nanoparticles coated with five molecular weight of PEG from 1K – 20K show a good agreement between methods and an average standard deviation of 4% for each measurement. However, four separate batches of polymer coated gold nanoparticles have an average relative standard deviation of 30%. These batch-to-batch fluctuations are most likely attributed to differences in the poly(ethylene glycol) materials rather than to either of the analysis methods.[1-3] Subtle changes in the polymer molecular weight distribution or age of the samples could impact the achieved grafting density for a sample. Every attempt was made to avoid these issues in this publication by purchasing fresh polymers stored under inert gas in the freezer, analyzing samples within 1-2 weeks of preparation and accurately determining the core diameter of the nanoparticles.

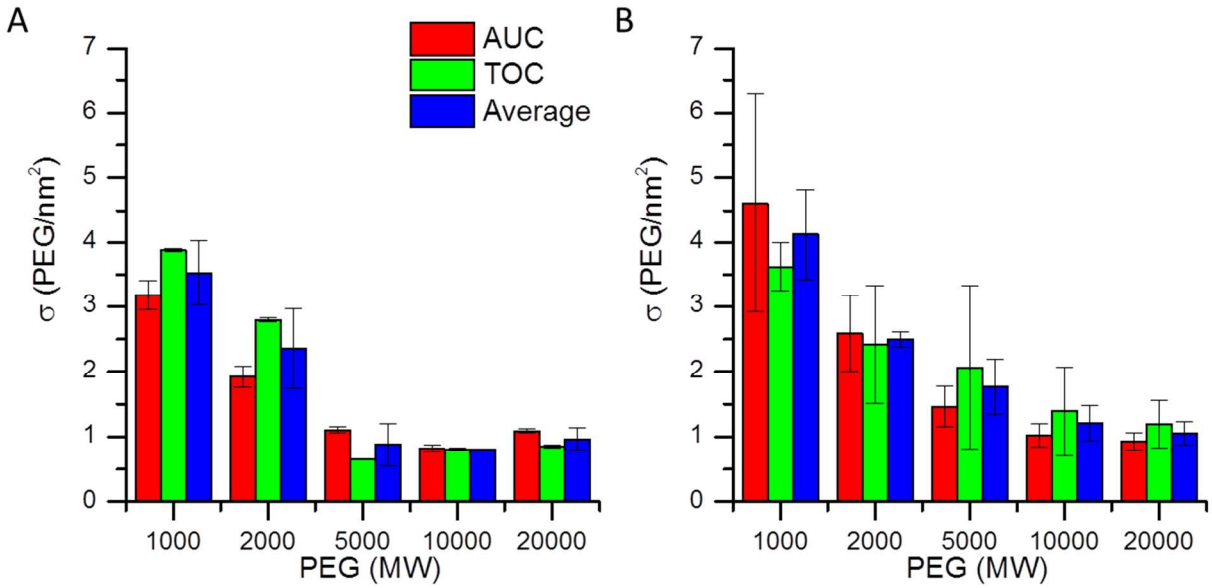

Figure S1. Comparison of the variation in grafting densities determined using AUC and TOC data for (A) replicate analysis and (B) batch-to-batch analysis show that the batch-to-batch variation is more significant by either technique.

(1) Jurnak, F. *J. Cryst. Growth* **1986**, *76*, 577.

(2) Ray Jr, W. J.; Puvathingal, J. M. *Anal. Biochem.* **1985**, *146*, 307.

(3) Research, H. In *Old PEG & PEG Stability*; Hampton Research: Website, 2012.