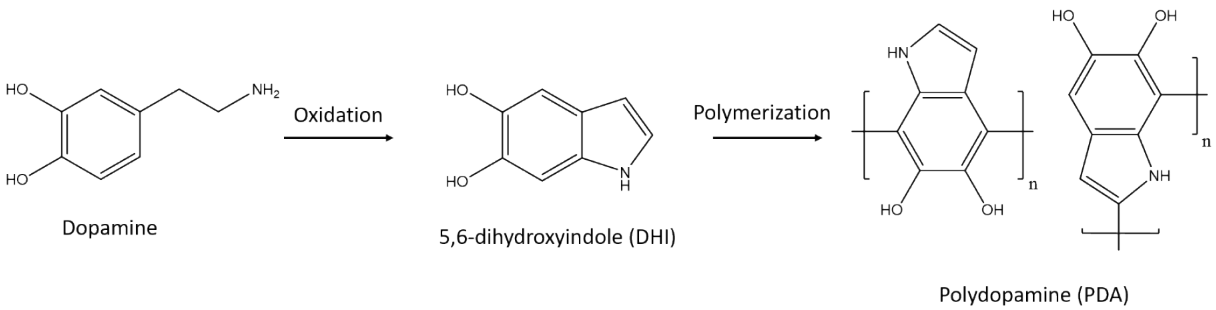
Supporting Information

Perfluorocarbon-loaded polydopamine nanoparticles as ultrasound contrast agents

Yijun Xie,[a,b] James Wang,[a,c] Zhao Wang,[a,d] Kelsey A. Krug,[a] and Jeffrey D. Rinehart *[a,b]

[a] Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA 92093, USA.
[b] Materials Science and Engineering Program, University of California, San Diego, La Jolla, CA 92093, USA.
[c] Department of NanoEngineering, University of California, San Diego, La Jolla, CA 92093, USA.
[d] Department of Chemistry, Northwestern University, Evanston, IL 60208, USA

Corresponding author
*Email: jrinehart@ucsd.edu



Scheme S1. Generalized representation of dopamine oxidative polymerization to form polydopamine (PDA). Multiple polymerization sites and protonation states create a highly-conjugated material similar to natural eumelanin.

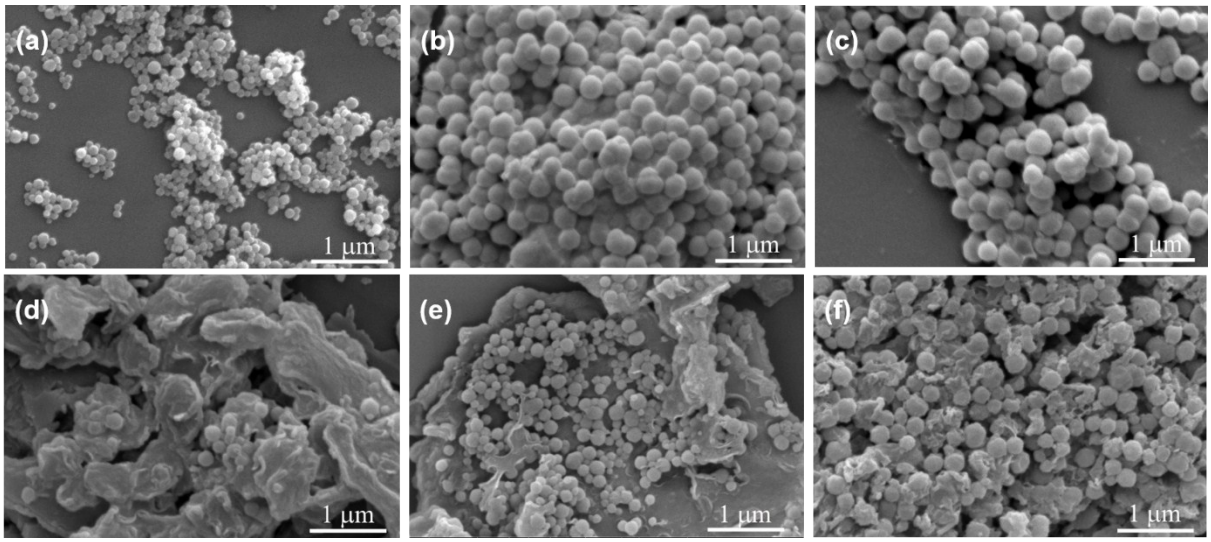


Fig. S1 SEM images of (a) PDA-74, (b) PDA-174, (c) PDA-350, (d) PDA-41-F, (e) PDA-135-F, and (f) PDA-242-F.

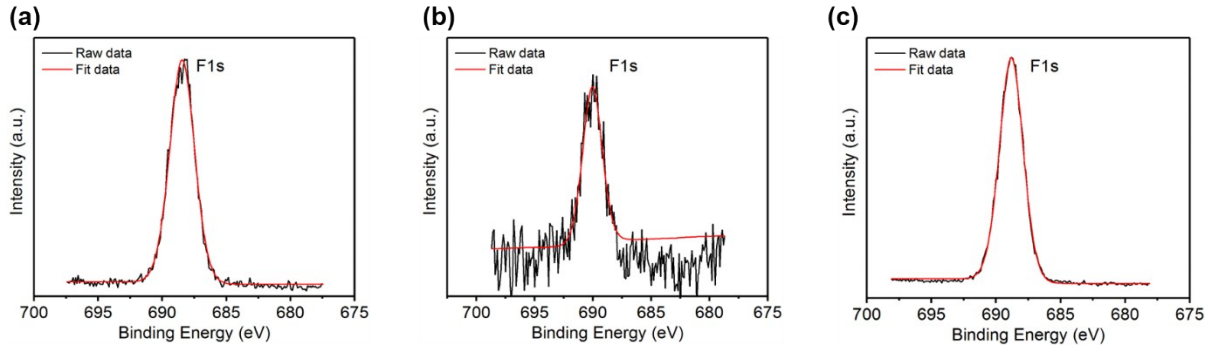


Fig. S2 F1s XPS spectra of (a) PDA-41-F, (b) PDA-135-F, and (c) PDA-242-F.

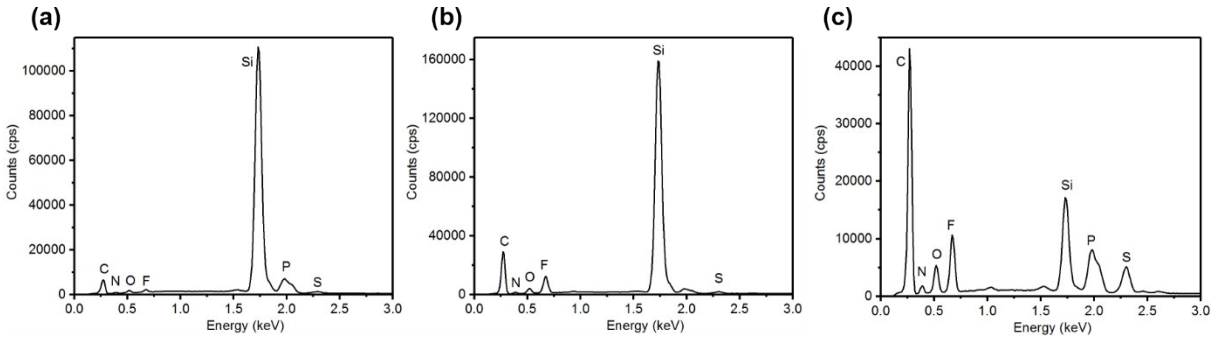


Fig. S3 EDS spectrum of (a) PDA-41-F, (b) PDA-135-F, and (c) PDA-242-F.

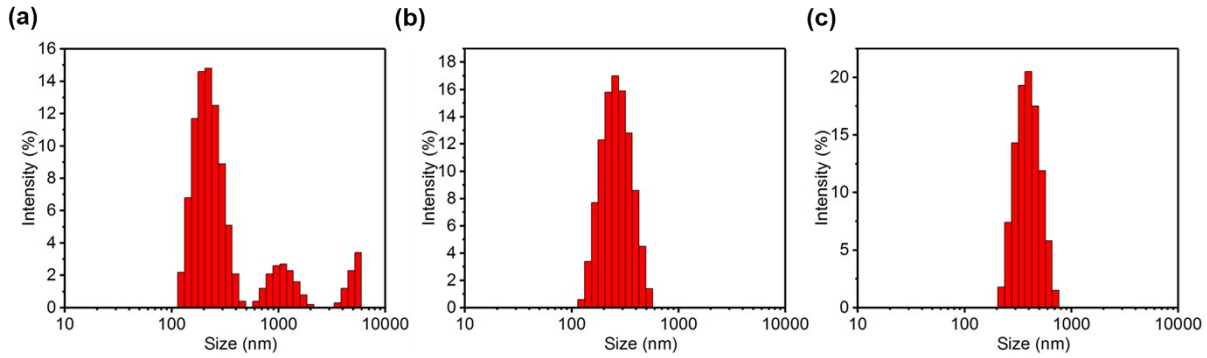


Fig. S4 DLS size distributions of (a) PDA-41-F, (b) PDA-135-F, and (c) PDA-242-F.

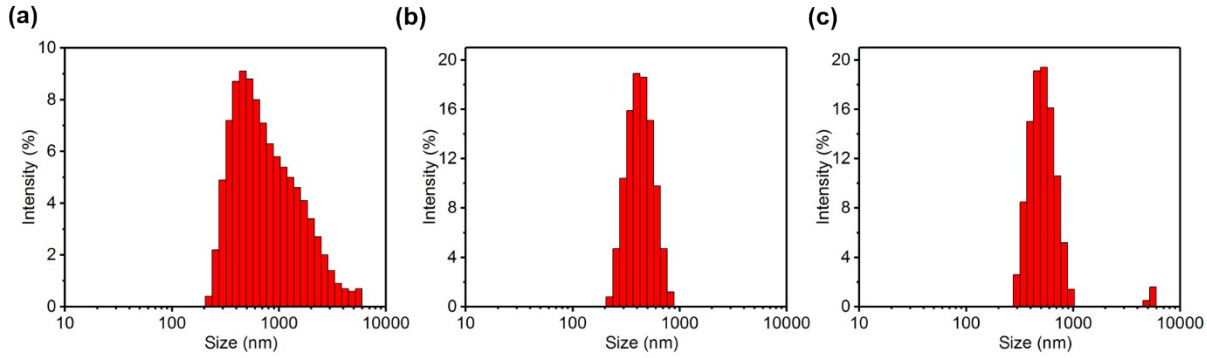


Fig. S5 DLS size distributions of PFP-loaded (a) PDA-41-F, (b) PDA-135-F, and (c) PDA-242-F.

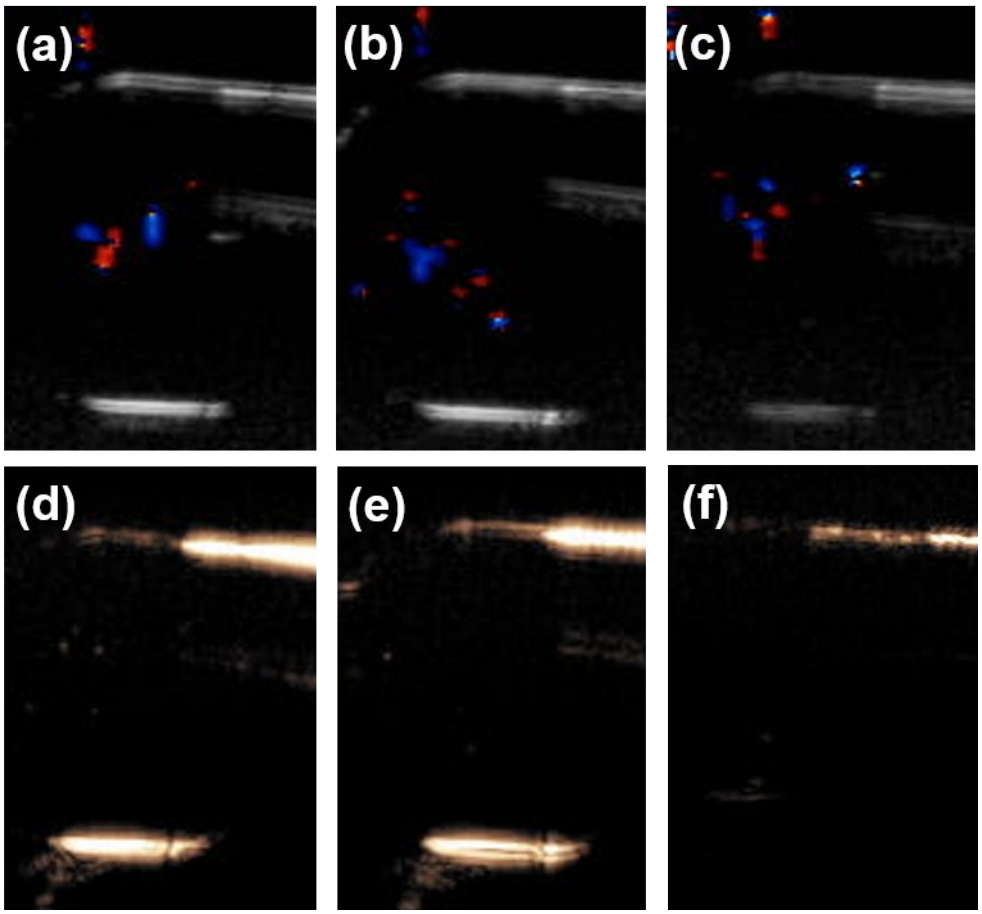


Fig. S6 Color Doppler imaging of (a) PDA-74, (b) PDA-174, and (c) PDA-350; CPS imaging of (d) PDA-74, (e) PDA-174, and (f) PDA-350 at MI=1.9 in aqueous solution without PFP treatment.

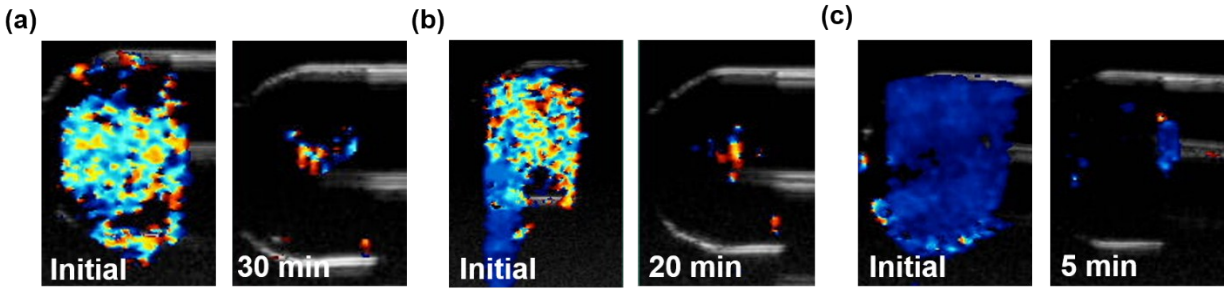


Fig. S7 Color Doppler signal detected at (a) 0 min and 30 min for PDA-41-F, (b) 0 min and 20 min for PDA-242-F, and (c) 0 min and 5 min for commercial Definity contrast agents at MI=1.9.

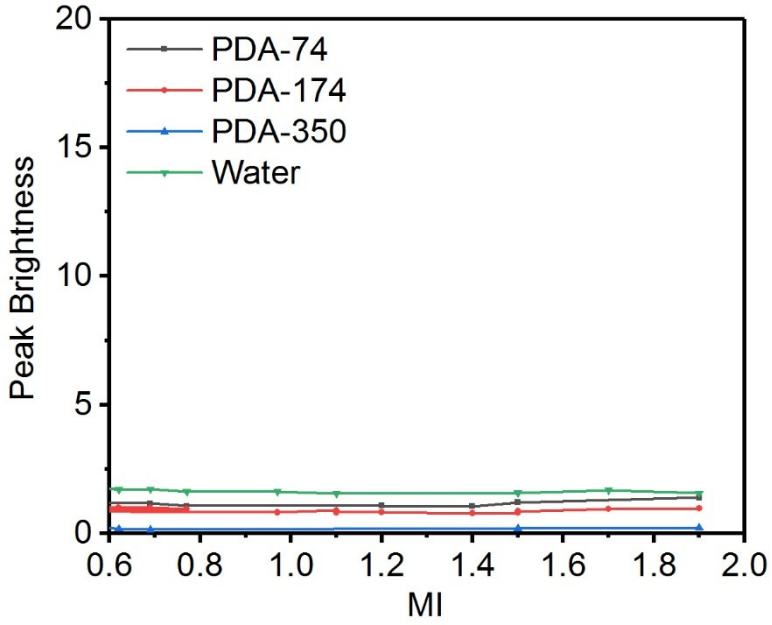


Fig. S8 Quantitative plot of brightness on CPS imaging versus MI for (a) PDA-74, (b) PDA-174, and (c) PDA-350 in aqueous solution without PFP treatment.

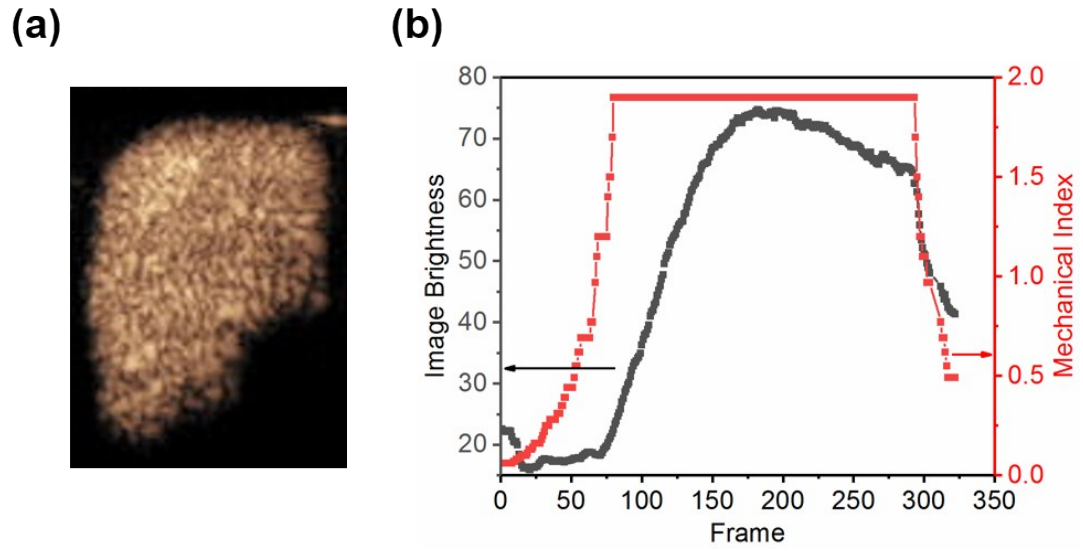


Fig. S9 (a) CPS imaging, and (b) quantitative average pixel brightness and MI for CPS imaging of the commercial contrast agent Definity.

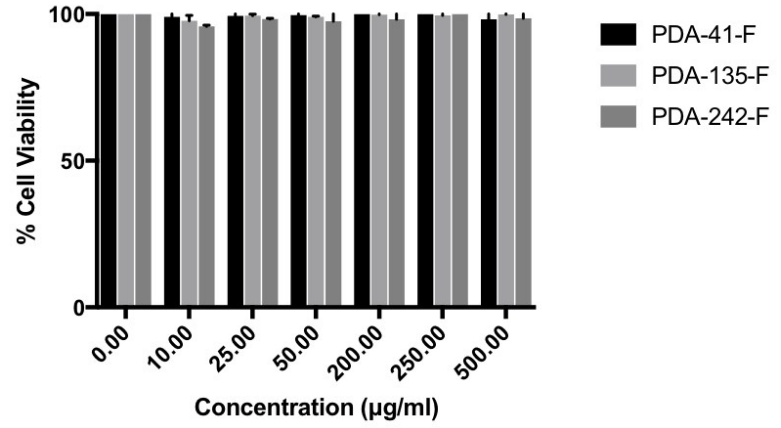


Fig. S10 Cell viability of HCT116 cells after incubation with different concentrations of PDA-41-F, PDA-135-F, and PDA-242-F for 24 h.