

Electronic Supplementary Information (ESI) for

Cadmium-Free Quantum Dots as Time-Gated Bioimaging Probes in Highly-Autofluorescent Human Breast Cancer Cells

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Experimental Details and Spectra of CIS/ZnS and CdSe/ZnS QDs

To render the QDs water soluble, the surfaces are coated with amphiphilic poly(maleic anhydride-alt-1-octadecene) via hydrophobic interactions, as previously described.¹ This polymer has multiple carboxylic acid groups to solubilize the QDs in aqueous solution and allows them to be coupled to lysine residues using 1-Ethyl-3-[3-dimethylaminopropyl]carbodiimide (EDC) as a crosslinker. After purification of the QD-bioconjugates by ultracentrifugation, QDs were resuspended in borate buffer. Fig. S1 shows the UV-visible and luminescence spectra of the CIS/ZnS and CdSe/ZnS QDs. The maximum emission wavelength of CdSe/ZnS and CIS/ZnS was 622 nm and 628 nm, respectively, and show spectral line widths of ~24 nm and ~107 nm. The quantum yields were found to be 60% and 30%, respectively. Although CIS/ZnS have a lower QY and wider spectral line widths we show in the manuscript that they perform just as well as the higher QY and narrower-emitting CdSe/ZnS QD for time gated imaging (TGI).

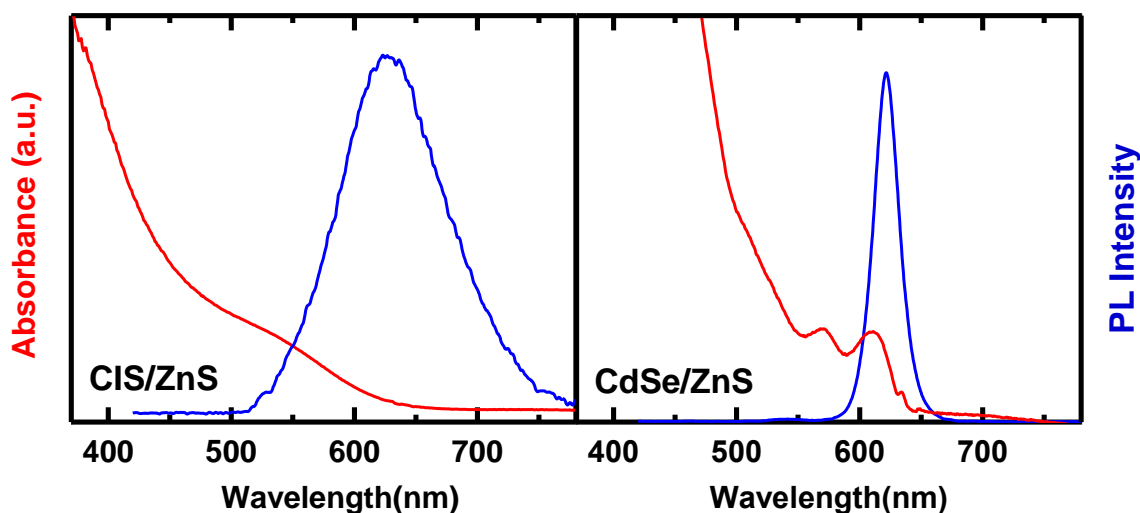


Figure S 1 - Absorption and photoluminescence spectra of CIS/ZnS and CdSe/ZnS QDs

References

- 1 K. Chen, J. Xie, H. Xu, D. Behera, M. H. Michalski, S. Biswal, A. Wang and X. Chen, *Biomaterials*, 2009, **30**, 6912.