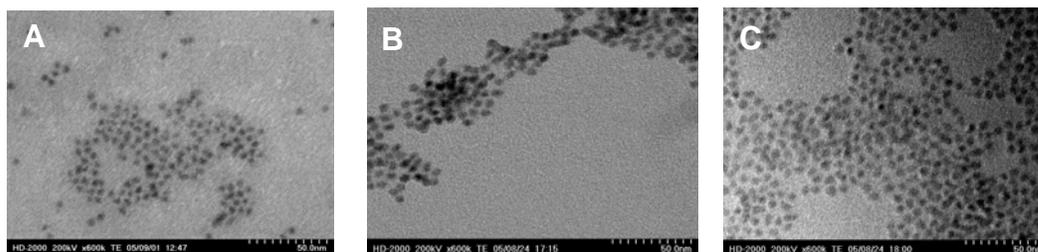


## SUPPLEMENTARY DATA – JIANG et al.

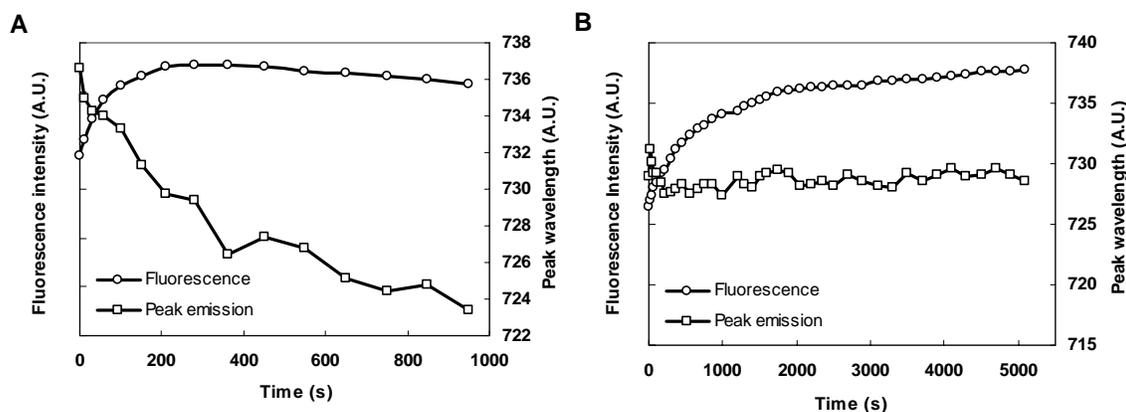
### Video

**Supplement video 1. Movie of single near-IR emitting Qdots blinking on/off:** The movie file was composed of a series of captured epifluorescence images of the near-IR Qdots dispersed in distilled water and spread onto a glass cover-slip. The images were captured using Olympus IX71 microscope; 100X magnification oil objective lens, with 100mW mercury lamp excitation. 620/30nm excitation and 750/20 emission filters were used. The images were acquired with a 100ms exposure time and 200ms interval. The on-off blinking behavior of the Qdots was apparent.

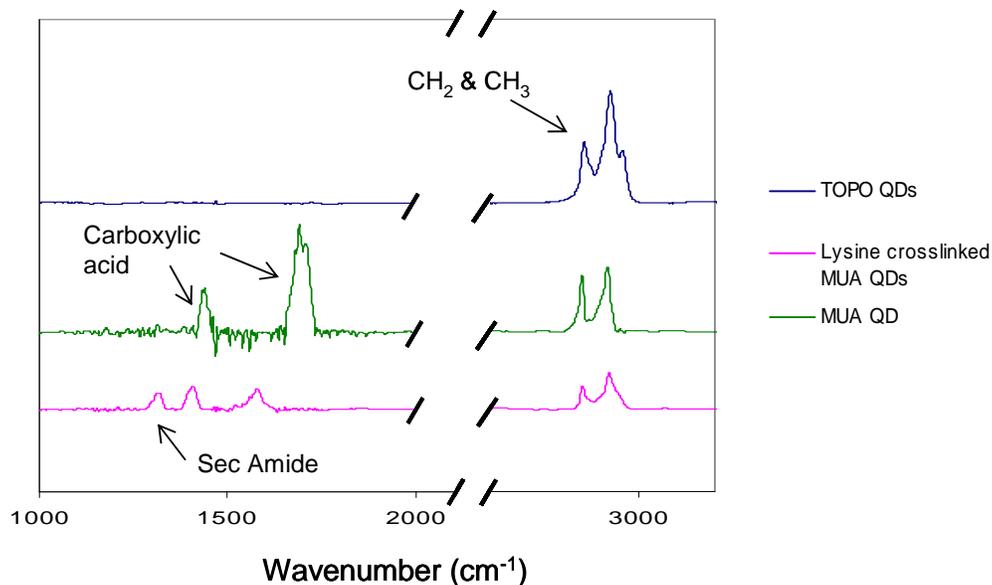
### Figures



**Supplement figure 1.** TEM images of 3 different populations of the alloyed Qdots. From the images, it is apparent that the Qdots are monodisperse.



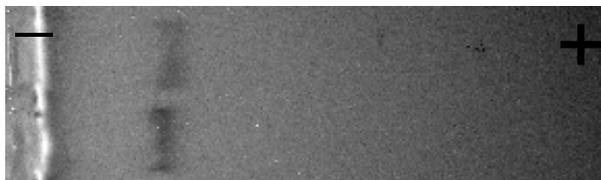
**Supplement figure 2.** Photo enhancement studies of NIR alloyed Qdots. A) CdTeSe Qdots, as expected, the fluorescence increases after continuous optical excitation (UV lamp) was accompanied by a blue-shift of the emission spectra, indicating that it is likely caused by photo-oxidation of the nanocrystals. B) CdTeSe/CdS Qdots. For core/shell Qdots, where no apparent spectral blue-shift was observed, indicating the fluorescence enhancement is not due to photo-oxidation, but rather a structural rearrangement between core/shell interfaces. (Note that the CdTeSe/CdS Qdots in  $\text{CHCl}_3$ , optical excitation was left longer to see if any changes in fluorescence spectra were missed)



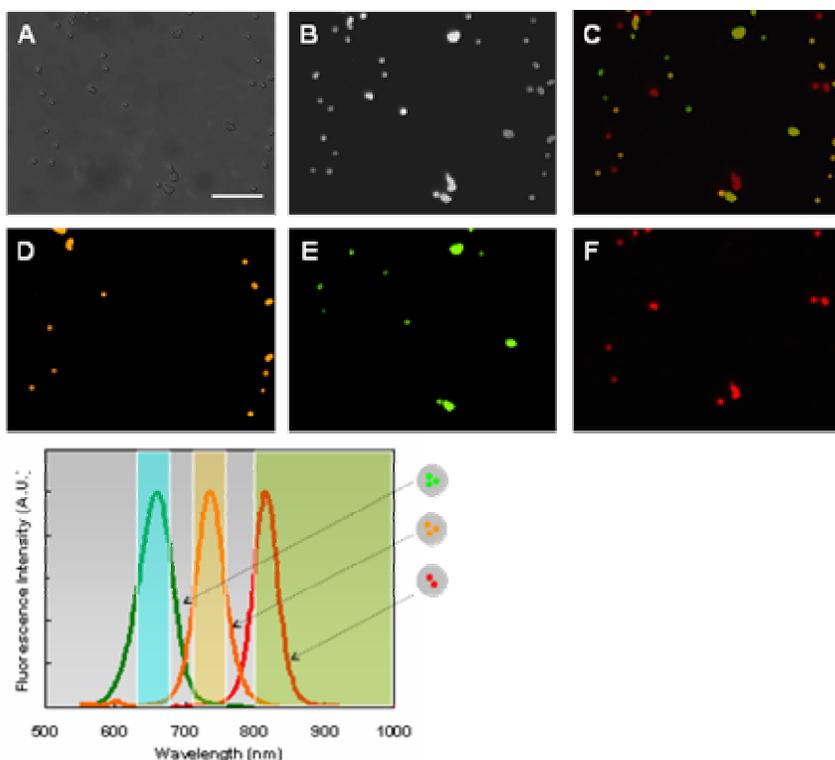
**Supplement figure 3. FTIR spectra of TOPO-coated, MUA Qdots, and lysine-cross-linked MUA near-IR emitting Qdots:** The long hydrocarbon chain was present in all three cases, the formation of carboxylic acid groups and the secondary amide bonds were only present in the lysine cross-linked MUA Qdots. The FTIR spectra showed the surface of the Qdots was modified. We would like to acknowledge Dr. Chris Yip for assistance in FTIR measurements.

**660nm QDs**

**810nm QDs**



**Supplement figure 4. Gel electrophoresis image of near-IR emitting Qdots (maximum fluorescence at 660 and 810 nm):** The narrow bands indicating that the Qdots were relatively monodisperse. 0.8% agrose gel was used for the study, with 0.5X TBE buffer, and 50V potential.



**Supplement figure 4. Multiplexed imaging near-IR emitting Qdots incorporated in polystyrene beads:** 660nm, 750nm, 810nm Qdots were incorporated into polystyrene beads. The Qdot-bead solution were then mixed and spread onto glass-cover slips and imaged using an epifluorescence microscope (Olympus, IX71, 100X magnification, 100mW Hg). Three different emission filters were used to selectively allow one Qdot emission to pass through. A) White light image of the Qdot-loaded beads. B) 600nm long pass image of the Qdot-beads. C) Fluorescence image of the beads under 650/40nm BP filter. D) Fluorescence image of the beads under 750/40nm BP filter. E) Fluorescence image of the beads under 800 LP filter. F) Pseudo-colored image composed of C), D), and E). All images were taken with a cool-snap CCD camera, and excited with a 535/25 excitation filter. We would like to acknowledge Dr. Ying Mu for the preparation of the beads. Scale bar, 10 $\mu$ m.