

Spatiotemporal Multicolor Labeling of Individual Cells Using Peptide-Functionalized Quantum Dots and Mixed Delivery Techniques

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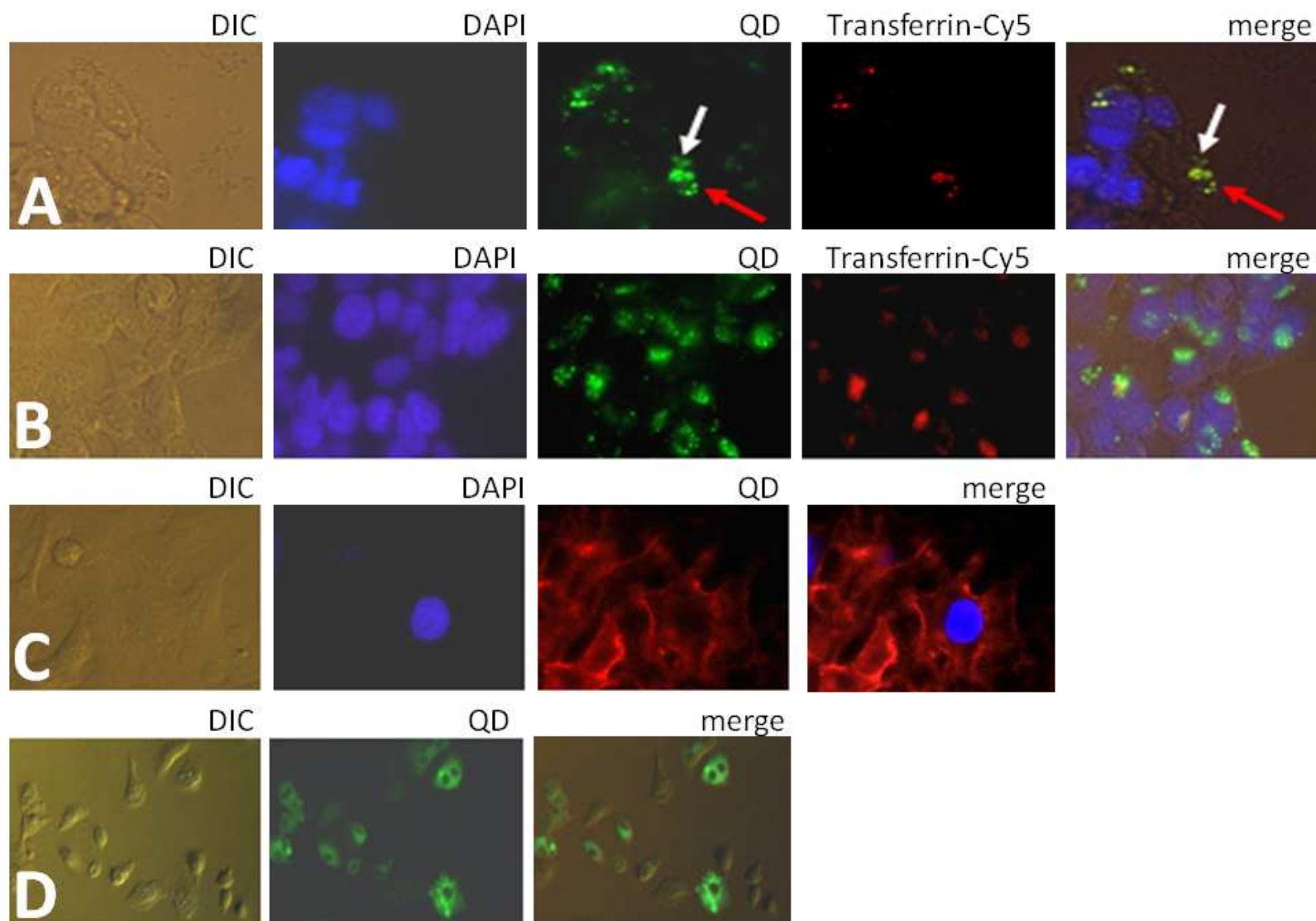
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Supporting Information

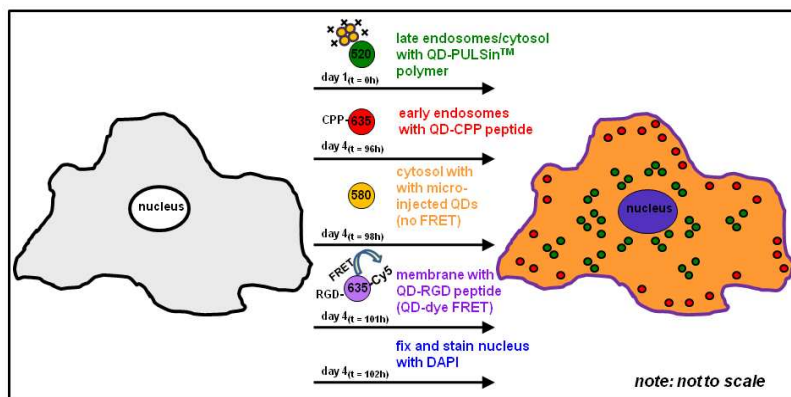
Supporting References:

(1) Delehanty, J. B.; Bradburne, C. E.; Boeneman, K.; Susumu, K.; Farrell, D.; Mei, B. C.; Blanco-Canosa, J. B.; Dawson, G.; Dawson, P. E.; Mattoussi, H.; Medintz, I. L. *Integr. Biol. (Camb)* **2010**, 2, 265-277.

Fig. S1 (Following Page) Cellular morphology of QD signal in A549 cells when QDs are delivered individually using the delivery regimes described in the main text. (A) 550 nm QDs delivered with PULSinTM transfection polymer. The QD signal is a mix of both punctate (endosomally-sequestered, red arrow) and diffuse (cytosolic, white arrow) indicating a modest degree of QD escape to the cytosol. Endosomal vesicles are counterstained with the endocytic marker Cy5-transferrin. Similar results are reported in.¹ (B) 550 nm QDs delivered with CPP peptide. QDs are fully sequestered within endosomes which are counterstained with Cy5-transferrin. In this case, the QDs and the Cy5-transferrin are always colocalized unlike that observed in the PULSinTM delivery. (C) Plasma membrane integrin receptors labeled with 635 nm QDs assembled with RGD peptides. The staining pattern is clearly localized to the membrane. In a-c, cell nuclei are counterstained with DAPI and magnification is 60x. (D) Microinjection of 550 nm QDs. QDs were microinjected directly into the cellular cytosol. The QD signal is well-dispersed throughout the cell and excluded from the nucleus. Magnification is 20x.



A



B

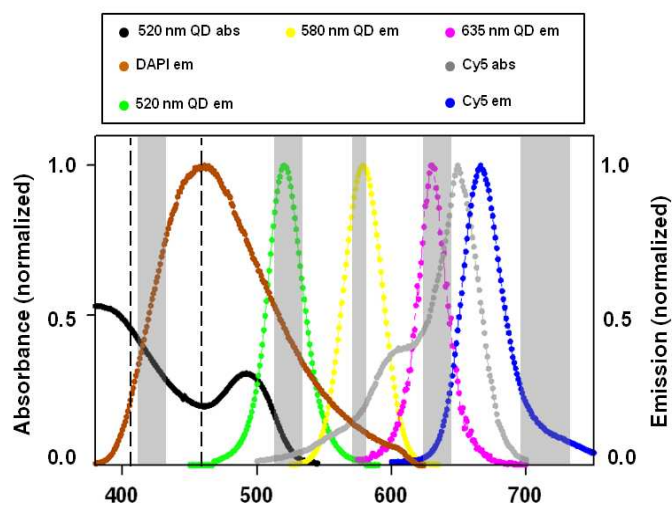


Fig. S2 (A) Schematic of spatiotemporal, multicolor labeling of live A549 cells (580 nm emitting QDs non-FRET configuration in this PL window used for microinjection). Cells were labeled with QDs over a four day period as described in Fig. 4 (main text). The only modification was that 580 nm QDs were used for microinjection (with no appended dye-labeled peptide to mediate FRET between the QD and proximal dye acceptor). (B) Excitation and emission spectra for QD and dye materials used in Fig. S3A. Excitation lines and absorption/emission profiles are shown for QDs and Cy5 dye. The emission collection windows are as described for Fig. 2 in the main text.