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**In vivo imaging with quantum dots encapsulated in phospholipid micelles**

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While fluorescent semiconductor nanocrystals (quantum dots) promise to revolutionize biological imaging, their use has been limited by difficulties in obtaining nanocrystals that are bio-compatible. To address this problem, we encapsulate individual nanocrystals in phospholipid block-copolymer micelles, and demonstrate both in vitro and in vivo imaging. When conjugated to DNA, the nanocrystal-micelles act as in vitro fluorescent probes to hybridize to specific complementary sequences. More importantly, when injected into Xenopus embryos, the nanocrystal-micelles are stable, non-toxic ($<5\text{x}10^9$ nanocrystals per cell), cell autonomous, and slow to photobleach. Nanocrystal fluorescence can be followed to the tadpole stage, allowing lineage tracing experiments in embryogenesis.