Electronic Supplementary Information (ESI) for

Cytosolic delivery of quantum dots mediated by freezing and hydrophobic polyampholytes in RAW 264.7 cells

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Fig. S1  NMR signal assignment of PLL-DDSA(10) in methanol-d$_4$. 
Fig. S2 ATR-FTIR spectra of (a) ε-PLL and (b) PLL-DDSA(10).
Fig. S3 Zeta potential of QDs, PLL-DDSA(10), and PLL-DDSA(10)-QDs determined using DLS. Data are expressed as mean ± SD.
**Fig. S4** Particle size stability of QDs only and PLL-DDSA(10)-QDs over 7 days at 25 °C. Data are expressed as mean ± SD.
Fig. S5 Cytotoxicity of QDs alone and PLL-DDSA(10)-QDs in fibroblast L929 cells and RAW 264.7 macrophages. The cells were incubated with different concentration of QDs for 48 h and analysed using MTT. The polyampholyte concentration was fixed, whereas the quantum dot concentration varied from 0 to 5 nM. IC$_{50}$ represents the concentration of QDs that caused a 50% reduction in the number of treated cells compared to the untreated control. (a) Fibroblast L929 cells and (b) RAW 264.7 macrophages. Data are expressed as mean ± SD.
Fig. S6 Cell viability in the presence of QDs alone or QD complexes with PLL and PLL-DDSA (10) in the presence of a cryoprotectant. Data are expressed as mean ± SD.
**Fig. S7** Confocal images of L929 fibroblast cells showing the adsorption of QDs after being frozen at -80 °C in a cryoprotectant. After 24 h, the cells were thawed at 37 °C and the adsorption was investigated using confocal microscopy. Scale bar: 50 µm. The panels show the (a) bare QDs, (b) PLL-QDs, and the (c) PLL-DDSA(10)-QDs. (d) Mean fluorescence intensity of the adsorbed QDs was determined after freezing using CLSM of RAW 264.7 cells. Data are expressed as the mean ± SD. ***P < 0.001.