Electronic Supplementary Material (ESI) for Nanoscale.

RBC micromotors carrying multiple cargos towards potential theranostic applications

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Supporting Information

1. Supporting Videos description

SI Video 1. Movement of cargo-loaded, red blood cell (RBC)-based micromotors in (300 mOsm, pH 7.2) PBS solution with encapsulated (**a**) MNPs, and (**b**) "MNPs, QDs, and DOX" under ultrasound field (2.4 MHz) oriented with an applied magnetic field provided by manually rotating a handheld magnet.

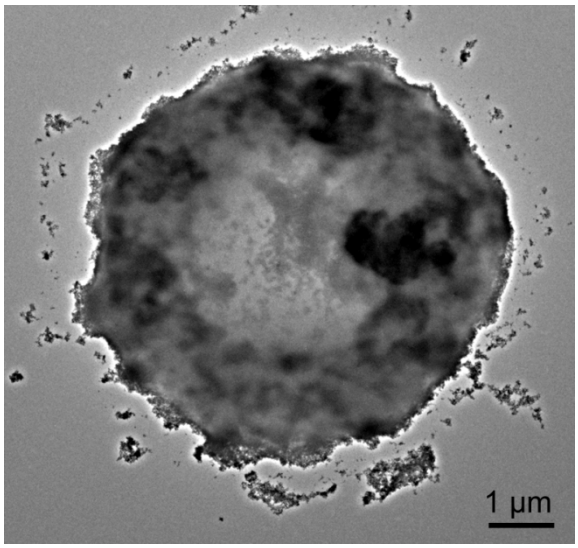
SI Video 2. Cargo-loaded, RBC-based micromotor's movement under an US field and an external magnetic field in the linear microfluidic channel.

SI Video 3. Movement of cargo-loaded, RBC-based micromotors under US field with an external magnetic field in the Y-shaped microfluidic intersection.

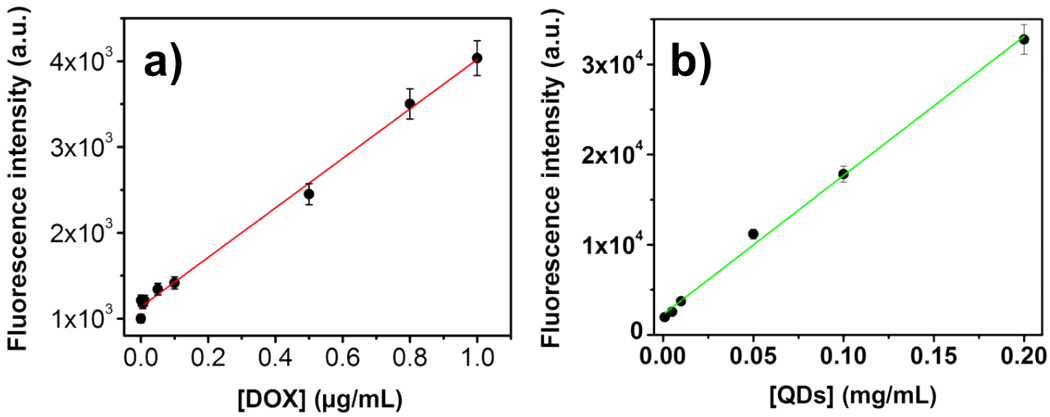
SI Video 4. Magnetic control of "US-powered, cargo-loaded, RBC-based micromotors" in the T-shaped microfluidic chip intersection.

SI Video 5. Magnetic control of "US-powered, cargo-loaded RBC-based micromotors" in the linear PDMS microfluidic channel

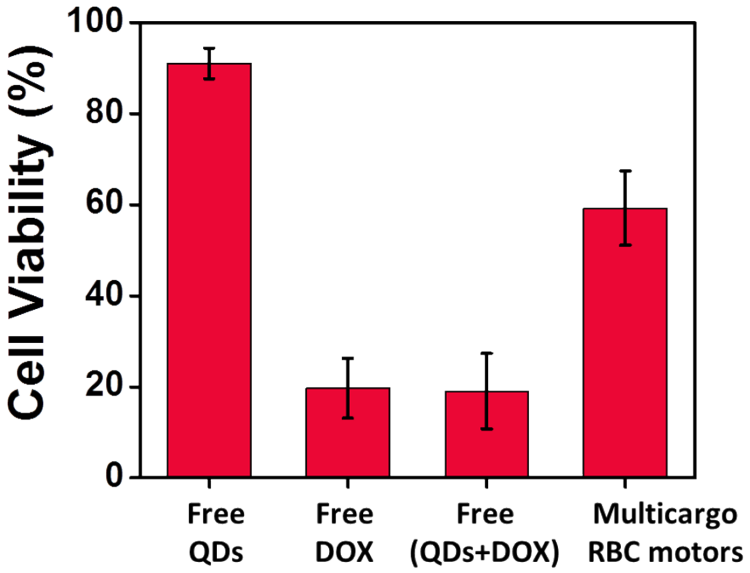
2. Supporting Figures



SI Figure 1. Transmission electron microscopy image of the RBC micromotor showing the internalization of high amount of aggregated MNPs.



SI Figure 2. Quantitative assay of DOX and QDs uptake in cells. (a) Fluorescence DOX intensity calibration plot and (b) fluorescence QDs intensity calibration plot. Error bars were estimated as three times the standard deviation (n = 3 RBCs).



SI Figure 3. Cellular viability assay. Cytotoxicity of free QDs, free DOX, free QDs+DOX, and multicargo RBC micromotors (loaded at the same concentration level of free DOX and QDs), against Human Umbilical Vein Endothelial Cells (HUVEC) after 24 hours of incubation. Error bars were estimated as three times the standard deviation (n = 3 assays).