

Supporting information

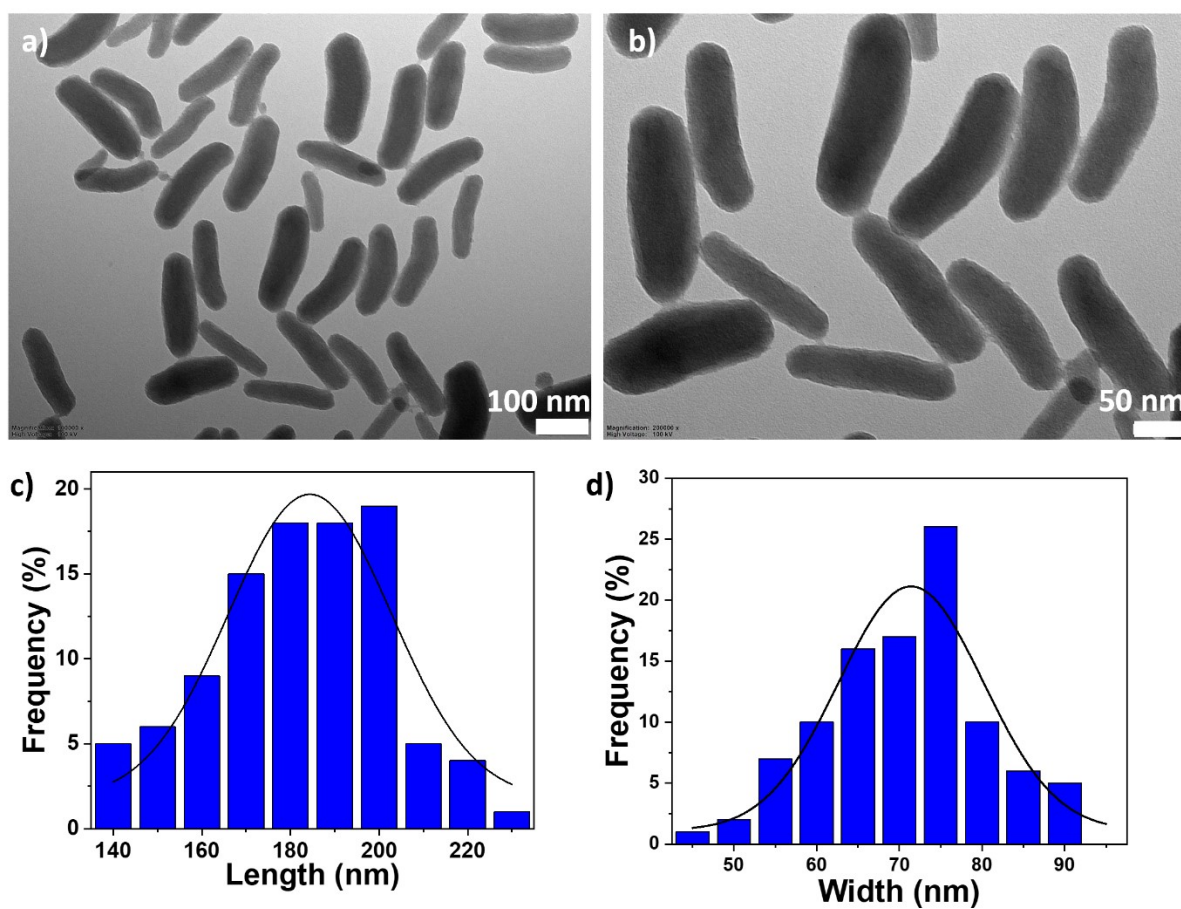


Figure S1. TEM image and size distribution of nanorods.

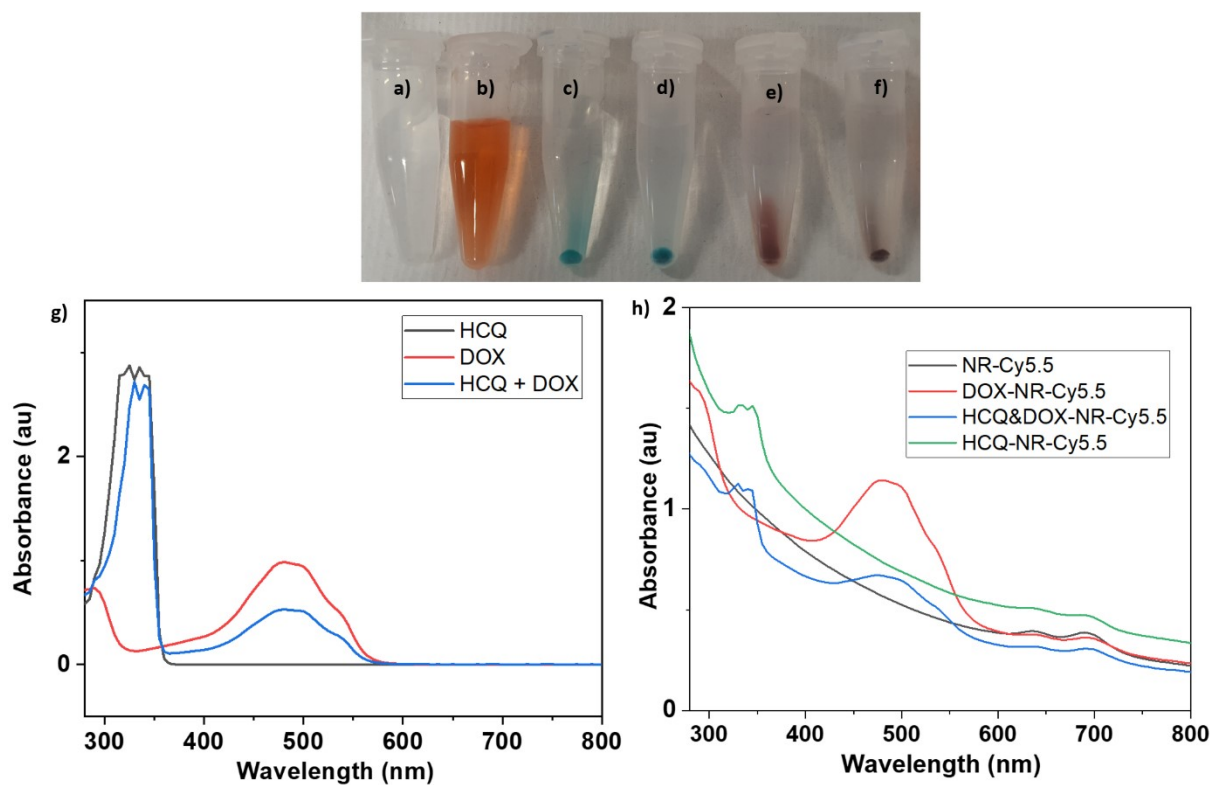


Figure S2. (a-f) Photograph of free drugs and drug-loaded nanorods in 1 mL of PBS buffer pH 7.4. a) free HCQ, b) free DOX, c) NR-Cy5.5, d) HCQ-NR-Cy5.5, e) DOX-NR-Cy5.5, f) HCQ&DOX-NR-Cy5.5. g) UV vis absorbance of free DOX and HCQ in PBS buffer pH 7.4. And h) UV vis absorbance of DOX-, HCQ-, and HCQ & DOX- loaded into mesoporous silica nanorod-Cy5.5 in PBS pH 7.4.

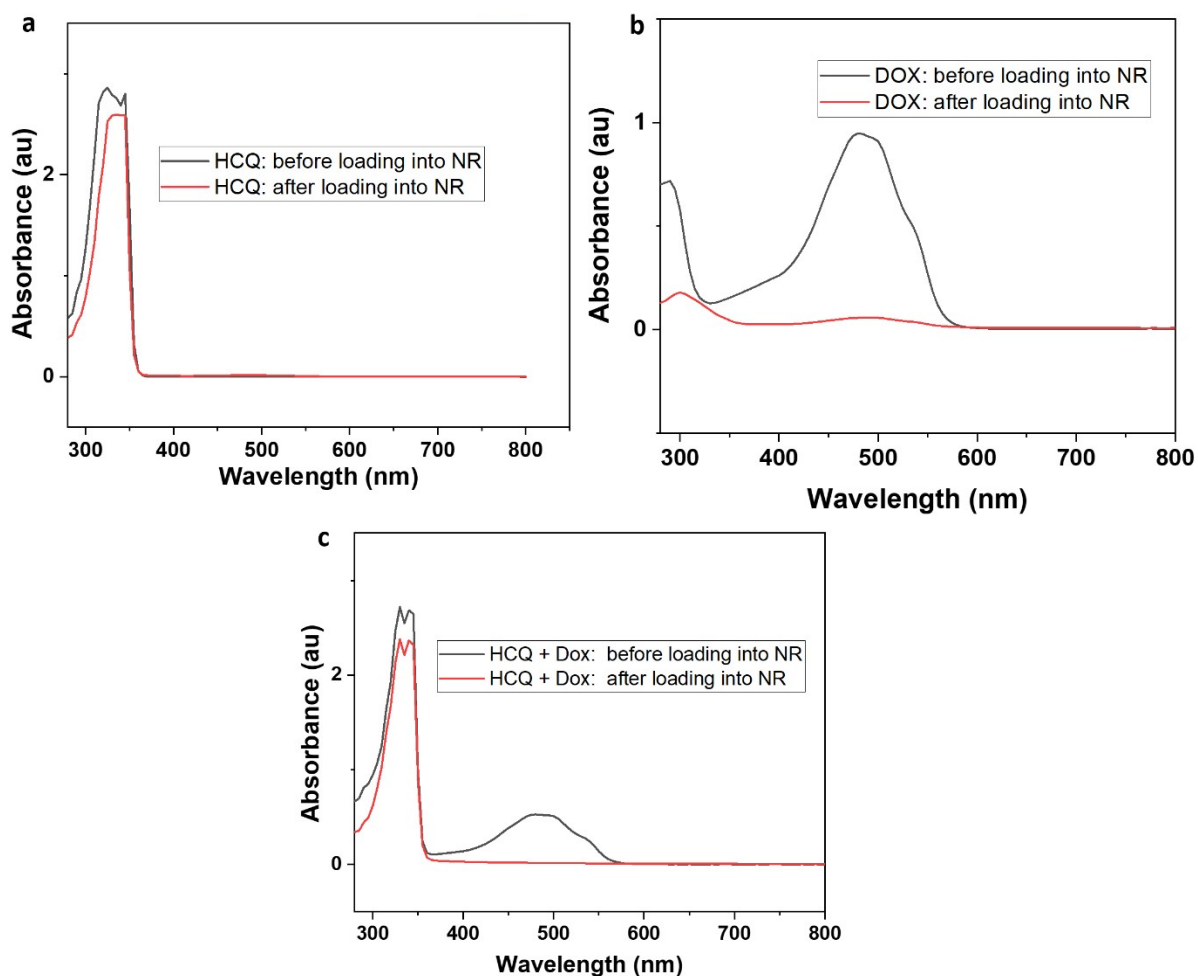


Figure S3. UV vis absorbance of hydroxychloroquine (HCQ) sulphate and/or doxorubicin (DOX) hydrochloride before and after loading into mesoporous silica nanorods. (a) UV vis absorbance of HCQ, (b) UV vis absorbance DOX, (c) UV vis absorbance of a mixture of HCQ and DOX before and after loading into mesoporous silica nanorods. HCQ (0.3 mg) or DOX (0.1 mg) was dissolved in 1.5 mL of water. For the HCQ and DOX mixture: HCQ (0.15 g) and DOX (0.05 mg) was dissolved in 1.5 mL water. After 48 h of loading, the drug-loaded nanorods was collected. The remaining solution was measured by UV vis absorbance again. The absorption peaked at 342 nm for HCQ and 480 nm for DOX. The HCQ and DOX mixture has two absorption peaks at 342 nm and 480 nm.

Table 1. Summary of drug-loaded into 5 mg of nanorods.

Drug in nanorods	Mass (mg)	Moles (mM)	% loading (wt/wt)
DOX	0.094	0.116	18.8%
HCQ	0.023	0.035	4.6%

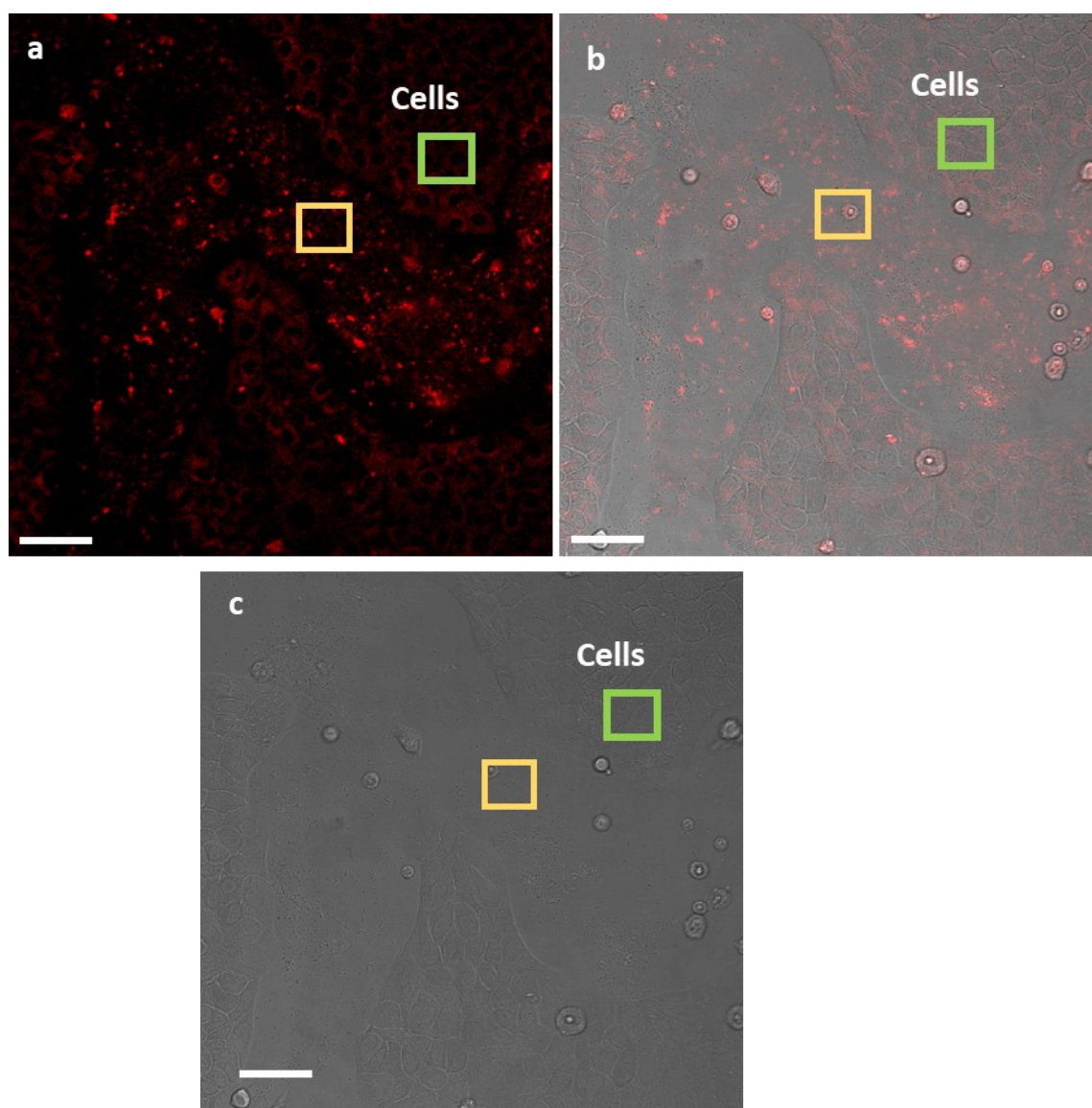


Figure S4. HCQ-NR-Cy5.5 were exposed to MCF10A cells at 20 h. The extracellular nanorods were shown in the yellow square. The intracellular nanorods were shown in the green square. The scale bar is 10 μm .

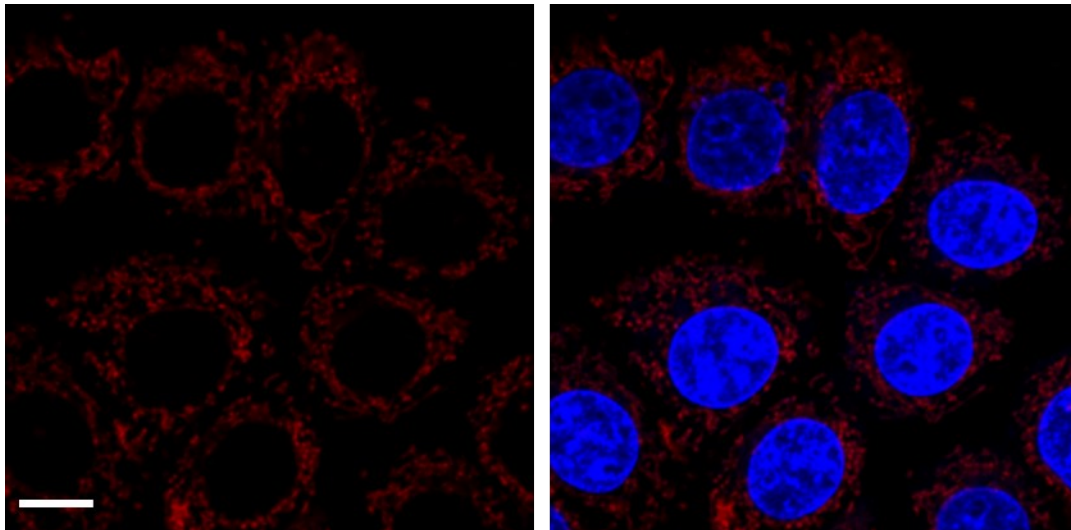


Figure S5. MCF7 cells were incubated with Cy5.5-labelled nanorods. The nucleus of cells were stained to see the co-localisation between nanorods and nucleus. The nanorods are presented in red. The nucleus was stained by Hoechst and presented in blue. The scale bar is 10 μm .