

Supporting Information

Triple-responsive inorganic-organic hybrid microcapsules as a biocompatible smart platform for delivery of small molecules

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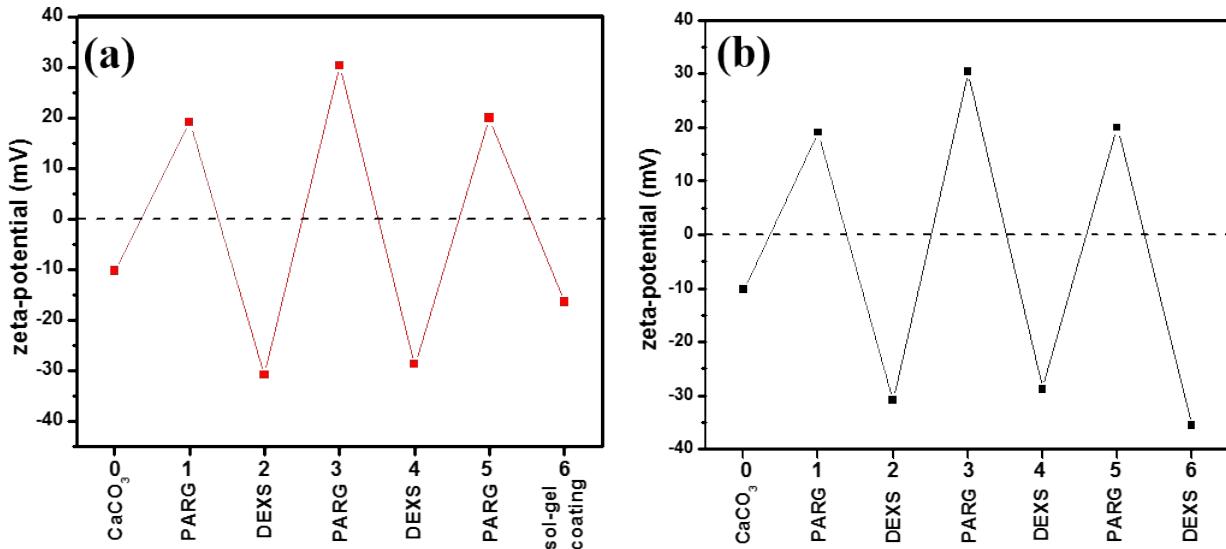


Fig. S1 Zeta potential measurements of $\text{SiO}_2/\text{TiO}_2$ -coated (a) and $(\text{PARG}/\text{DEXS})_3$ (b) capsules after each deposition step. The first measurement (layer 0) is the surface of the starting CaCO_3 microporous templates. PAGR: poly-arginine with positive charge; DEXS: dextran sulfate with negative charge; sol-gel coating: $\text{TiO}_2/\text{SiO}_2$ nanostructures with negative charge.

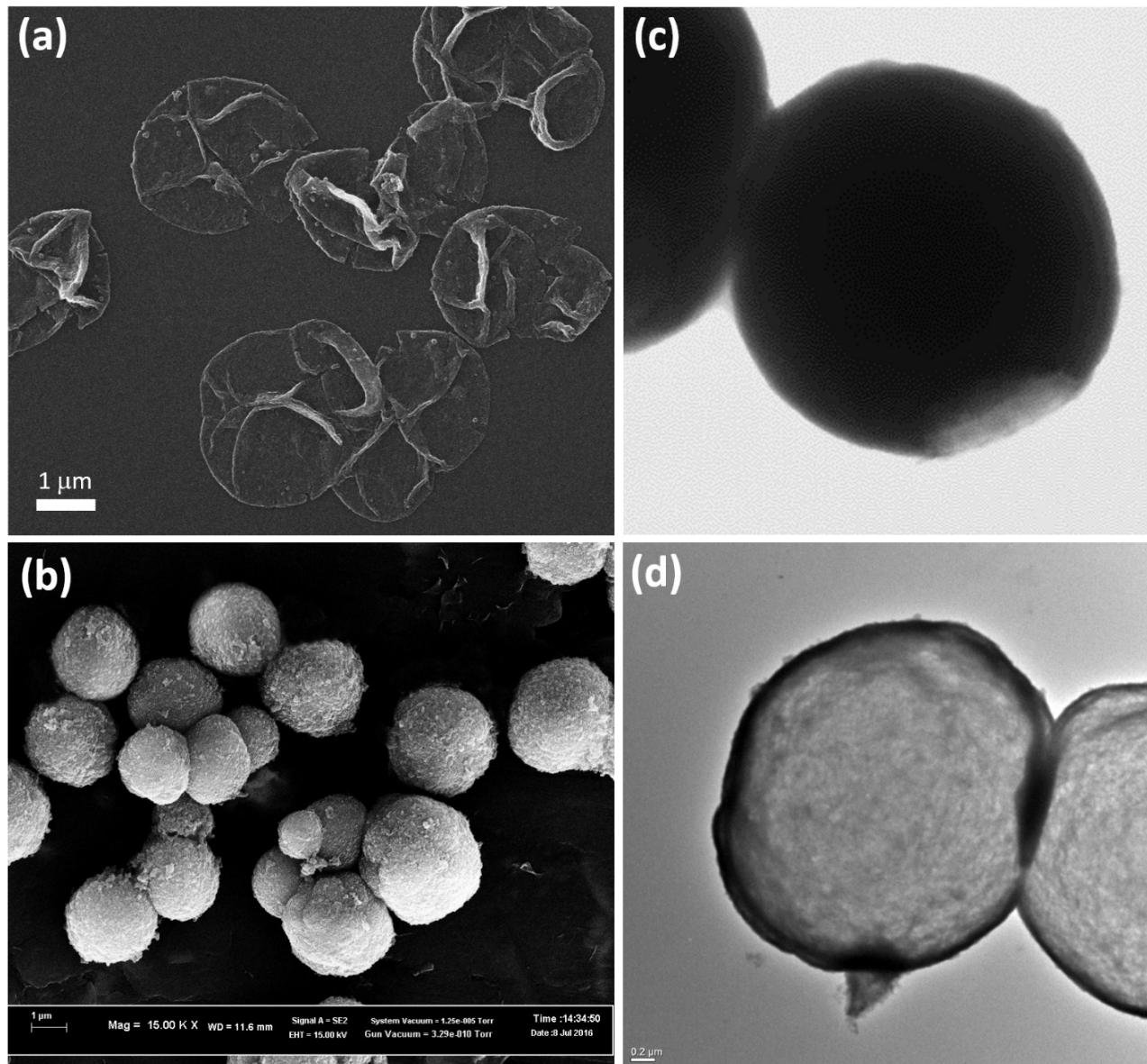


Fig. S2 SEM images of $(\text{PARG}/\text{DEXS})_3$ (a) and $\text{SiO}_2/\text{TiO}_2$ -coated (b) capsules; TEM images of $\text{CaCO}_3@\text{SiO}_2/\text{TiO}_2$ -coated particle (c) and hollow $\text{SiO}_2/\text{TiO}_2$ -coated capsule after CaCO_3 removal (d).

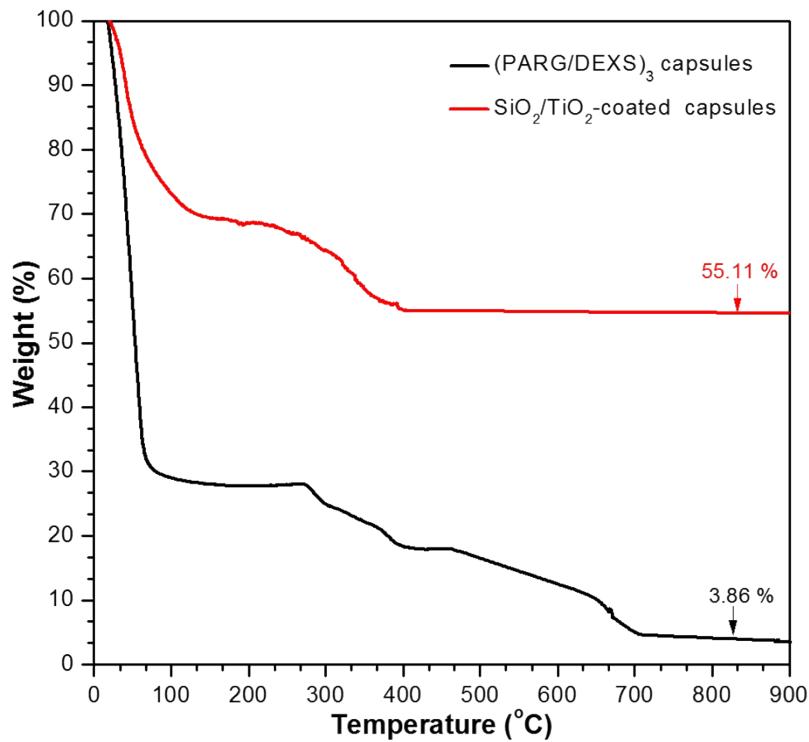


Fig. S3 Thermogravimetric analysis (TGA) profiles of SiO₂/TiO₂-coated and (PARG/DEXS)₃ capsules.

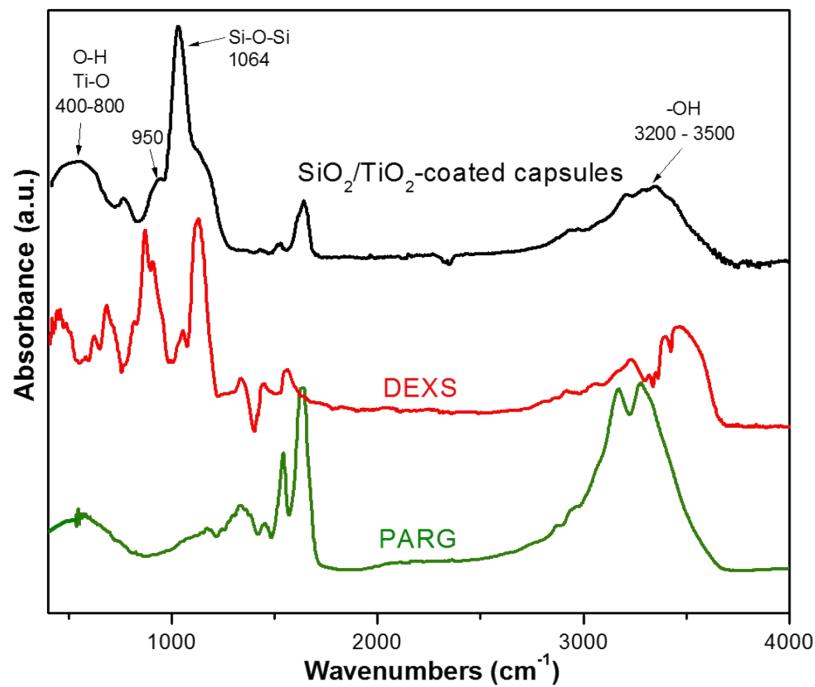


Fig. S4 FTIR spectra of SiO₂/TiO₂-coated capsules, DEXS and PARG.

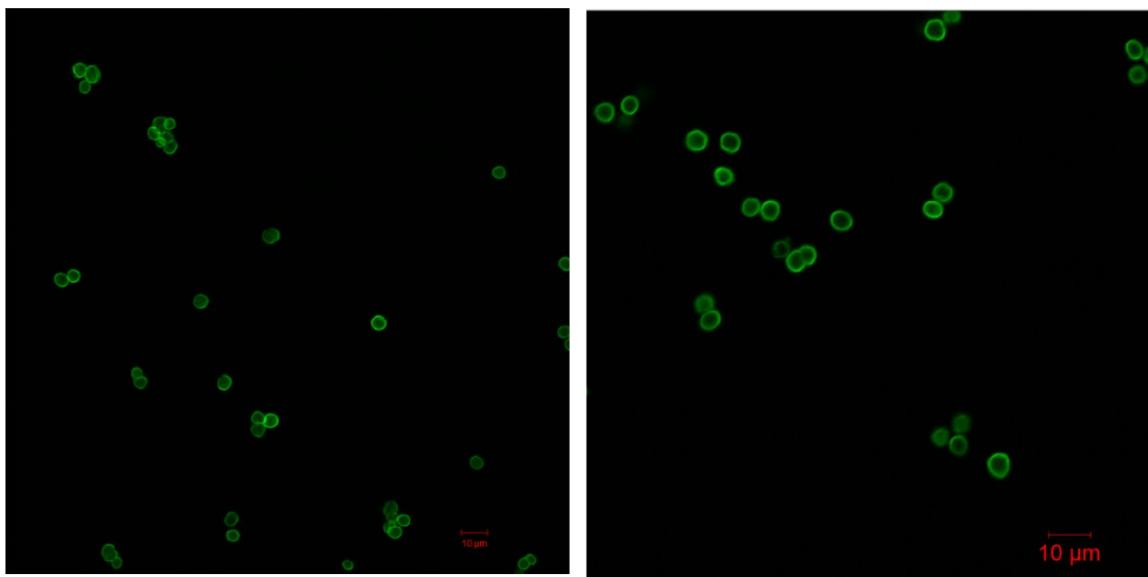


Fig. S5 CLSM images of $\text{SiO}_2/\text{TiO}_2$ -coated capsules loading with FITC.

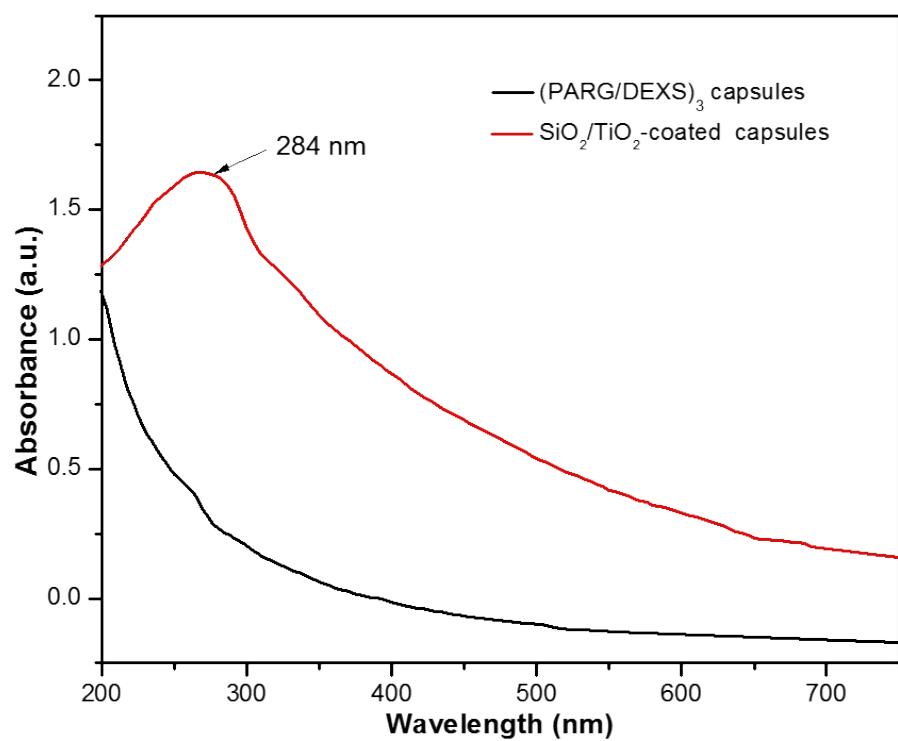


Fig. S6 UV-vis spectra of $\text{SiO}_2/\text{TiO}_2$ -coated and $(\text{PARG}/\text{DEXS})_3$ capsules.

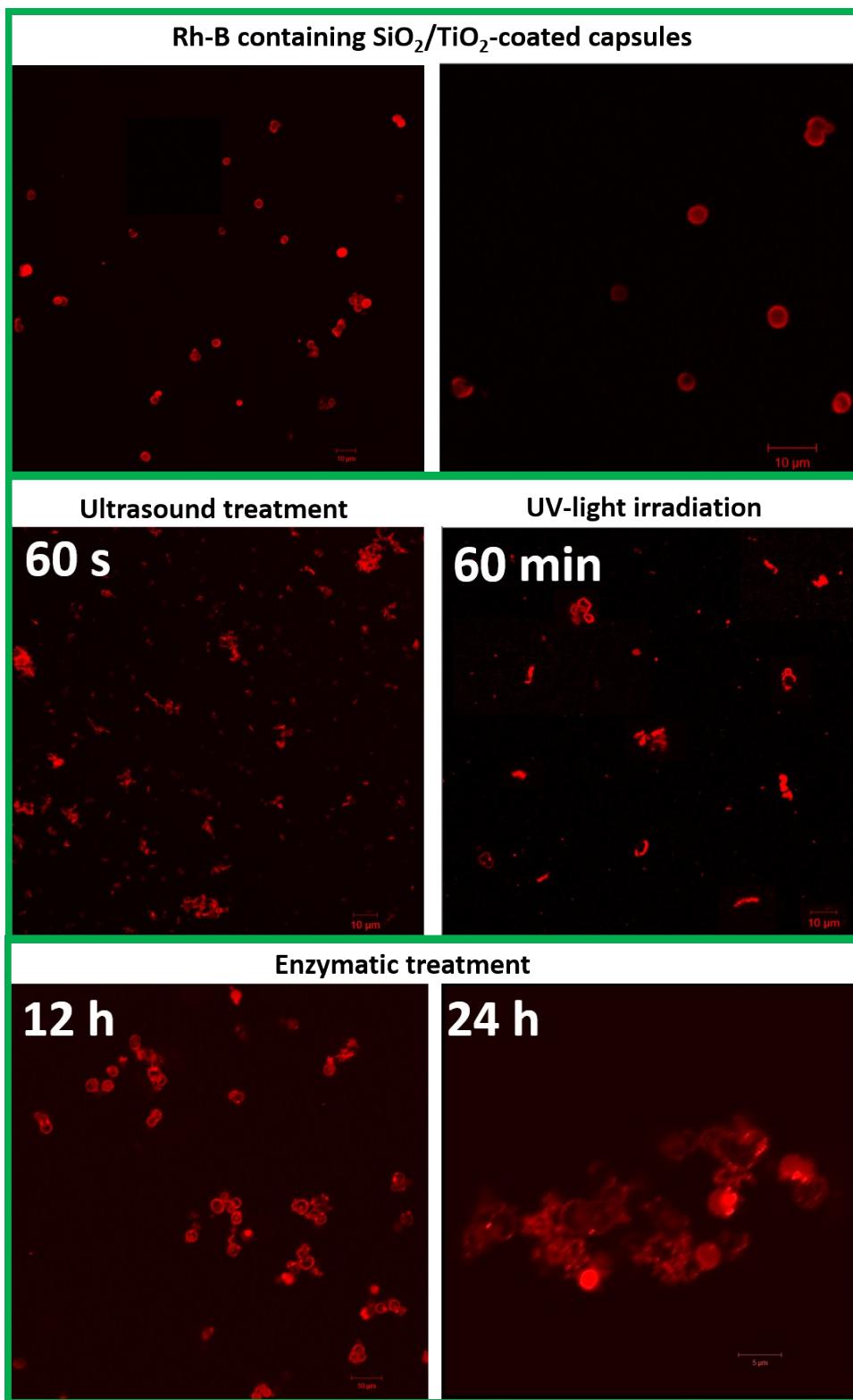


Fig. S7 CLSM images of $\text{SiO}_2/\text{TiO}_2$ -coated capsules with Rh-B (red capsules) showing the enzymatic, ultrasound and UV-light influence on decomposition of capsules at different period of the time.

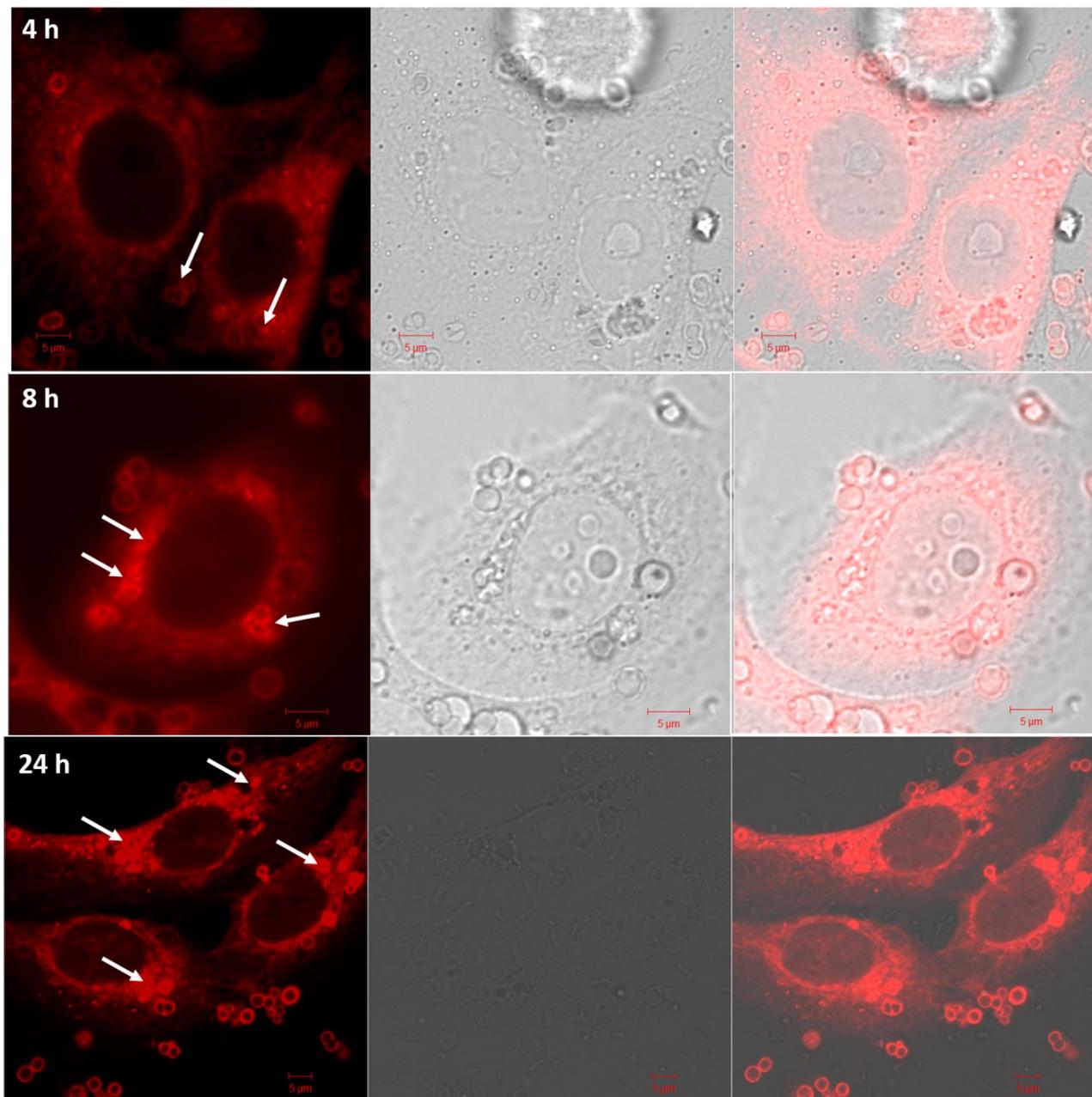


Fig. S8 CLSM images demonstrating degradation of SiO₂/TiO₂-coated capsules and Rh-B release when they incubated with HeLa cells for 24 h.

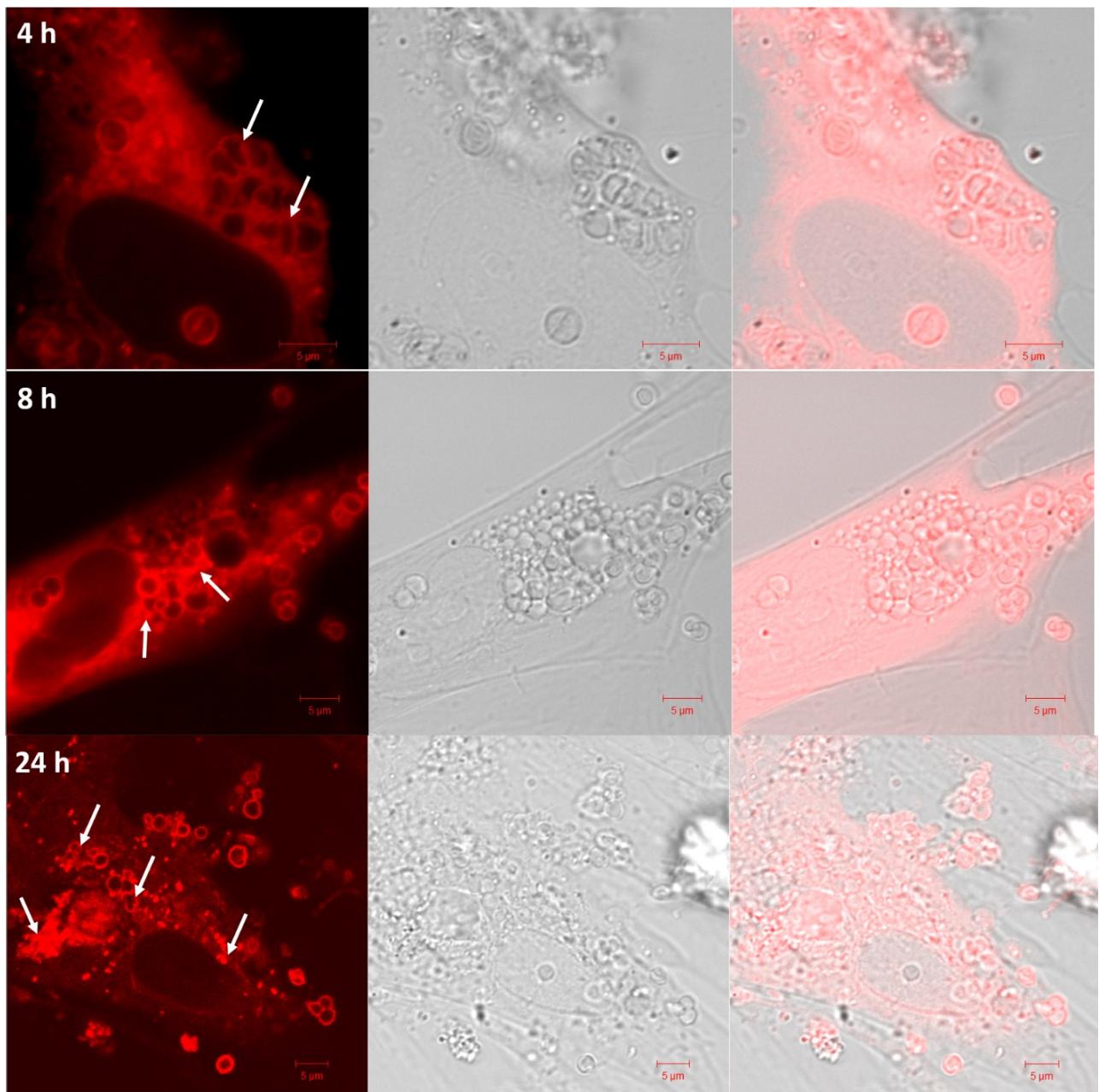


Fig. S9 CLSM images demonstrating degradation of $\text{SiO}_2/\text{TiO}_2$ -coated capsules and Rh-B release when they incubated with MSCs for 24 h.