

Supplementary Video:

Video S1. *Time-lapse* video of HeLa cells incubated with 15 $\mu\text{g}/\text{mL}$ $\text{Fe}_3\text{O}_4@\text{SiO}_2\text{-RBITC}$ NPs for 12 h. Images were taken every 20 min with a Nikon Eclipse Ti Fluorescence Microscope, equipped with an incubator with CO_2 , temperature and humidity control. The fluorescence of the NPs displayed long standing stability in the extracellular and intracellular environments due to the entrapment and shielding of fluorophores in the silica matrix, allowing their tracking through the exposure time.