Electronic Supporting Information

Dual-emissive fluorescence measurements of hydroxyl radical using coumarin-activated silica nanohybrid probe

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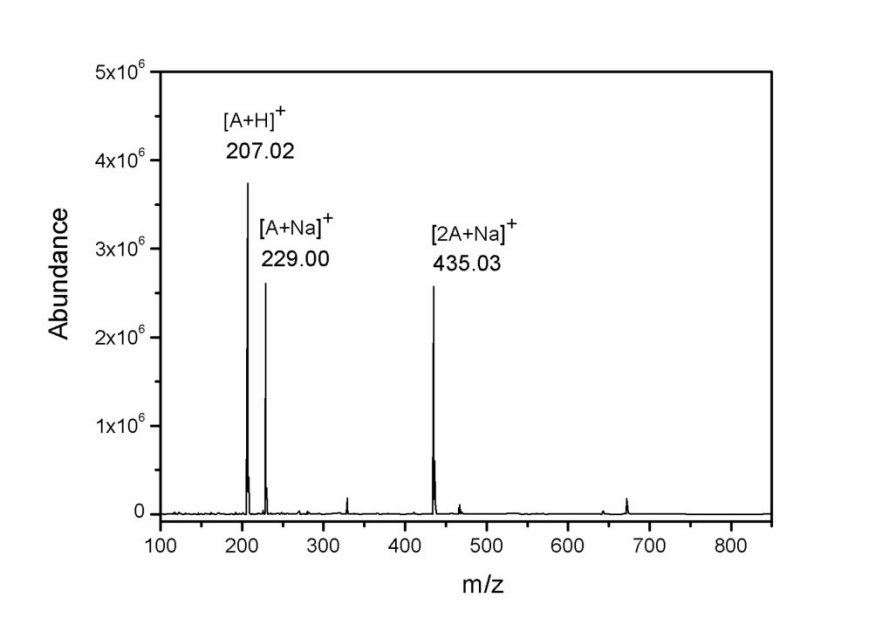

Fig. S1 ESI-MS spectrum of 7-hydroxy coumarin 3-carboxylic acid (A representative of 7-hydroxy coumarin 3-carboxylic acid).

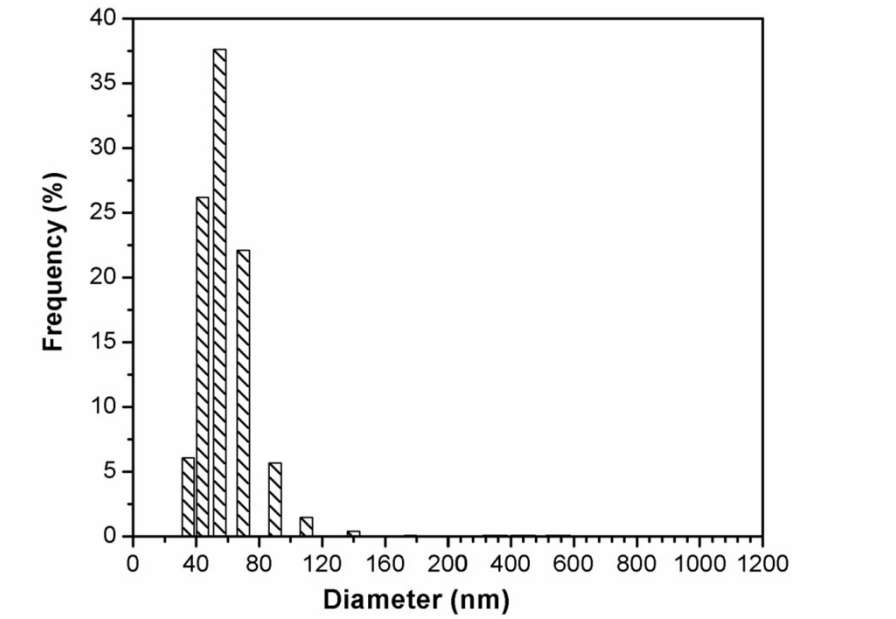

Fig. S2 Size distribution of the nanohybrid probe obtained from Malvern Zetasizer 3000 HSA size measurement.

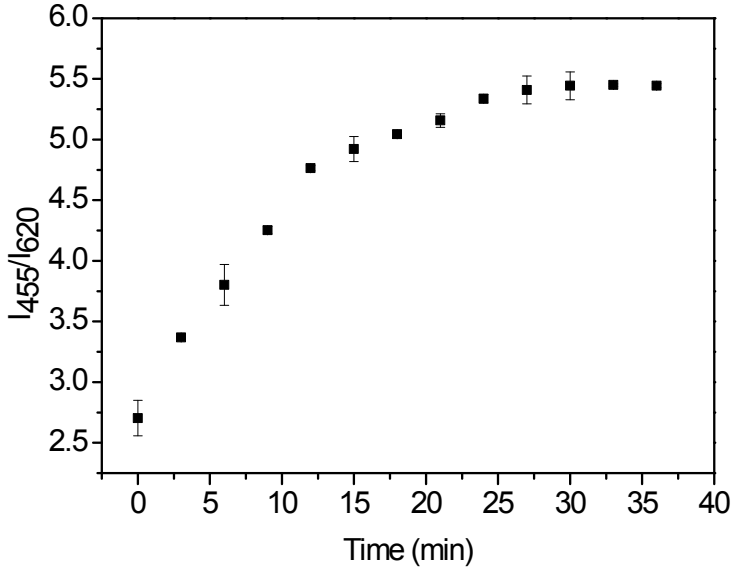

Fig. S3 The relationship between the fluorescence ratio (I_{455}/I_{620}) and reaction time.

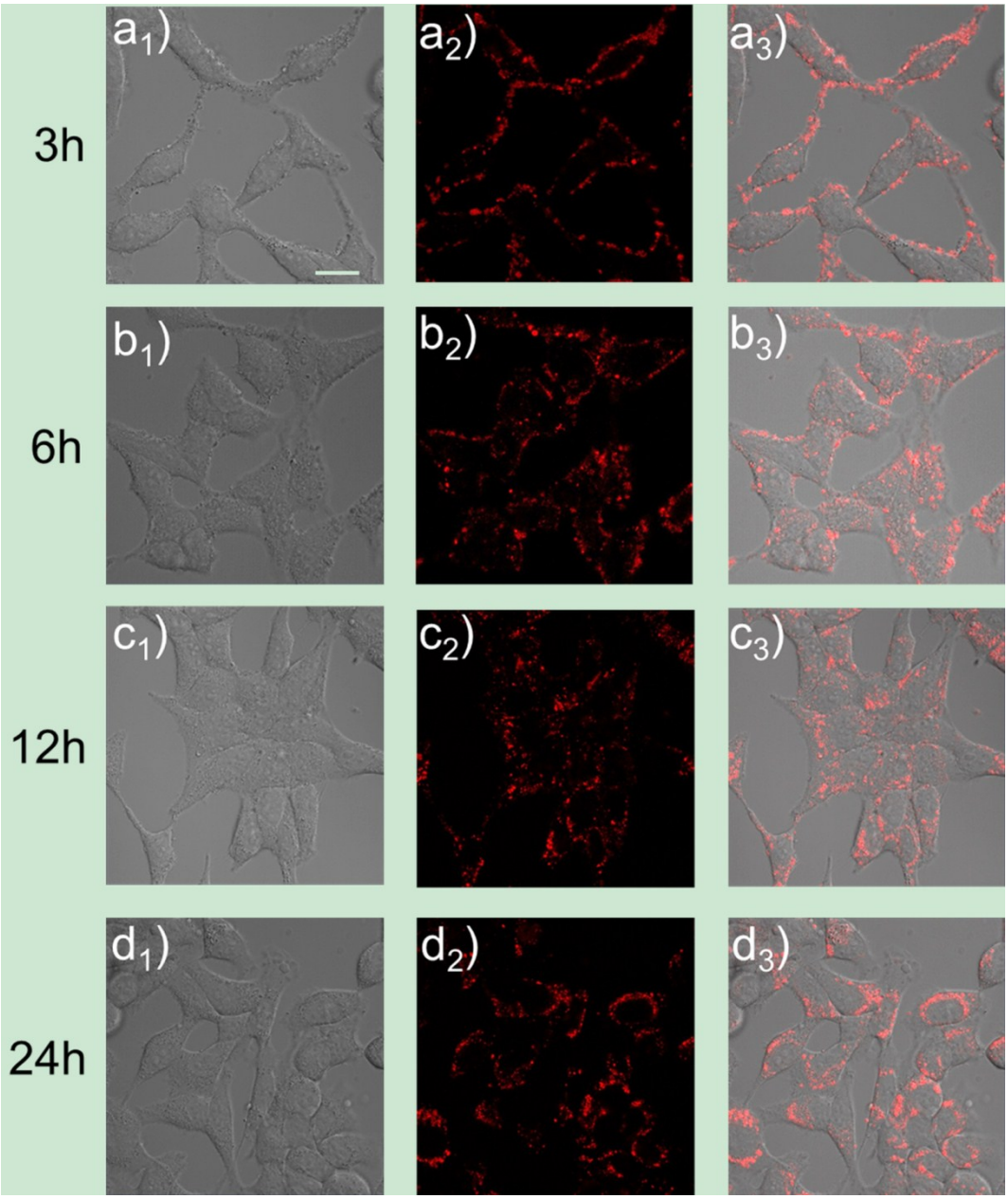

Fig. S4 The confocal flourescence image of Hela cells at different time incubation with 50 μl dual-emission probe. 1) Fluorescence images at bright filed. 2) Fluorescence images at red channel (λ_{em}=580-680nm). 3) Overlap of red-channel fluorescence and DIC images**.** Scale bar: 20 μm.

To make sure how fast the uptake occurs, we have performed cell experiments at different time points incubation with the nanohybrid probe (3h, 6h, 12h and 24h). As shown in Fig.S3, almost all of the nanohybrid probes were adsorbed on the cell surfaces and few probes were uptaken into the cell at 3h. At 6h, some nanohybrid probes were internalized into the cells while some still adsorbed on the cell surfaces. After 12 hours, most of the nanoparticles were ingested into the cell and distributed in cytoplasm. After incubation with probes for 24h, all the probes were taken into the cell and locate near the nucleus.

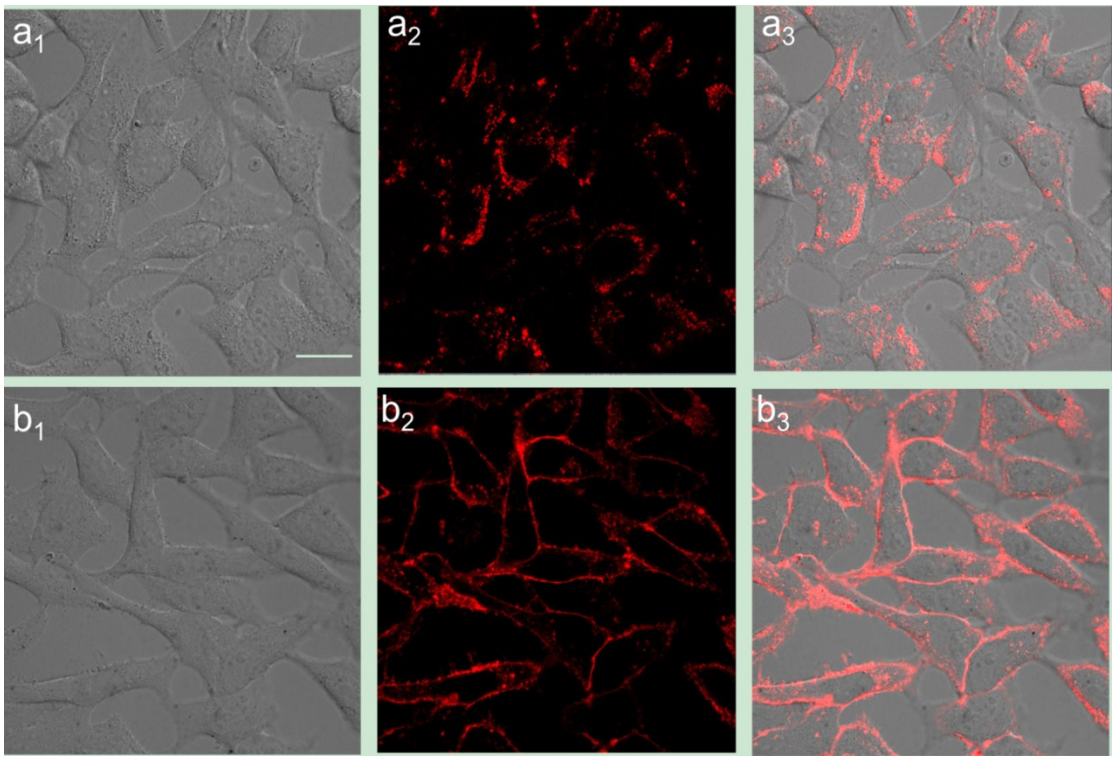

Fig. S5 The confocal flourescence image of Hela cells incubated with dual-emission probe (50μl) and membrane marker DiI (5μM) respectively. 1) Fluorescence images at bright filed. 2) Fluorescence images at red channel (λ_{ex}=543nm, λ_{em}=580-680nm). 3) Overlap of two-channel fluorescence and DIC images. Scale bar: 20 μm .