Electronic Supplementary Material (ESI) for Nanoscale.


# Supporting Information

# 808nm light-excited upconversion nanoprobe based on LRET for the ratiometric detection of nitric oxide in living cancer cells

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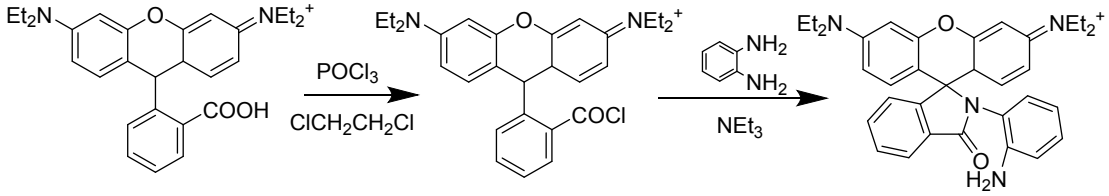


**Figure S1** The synthetic procedure of RhBs.

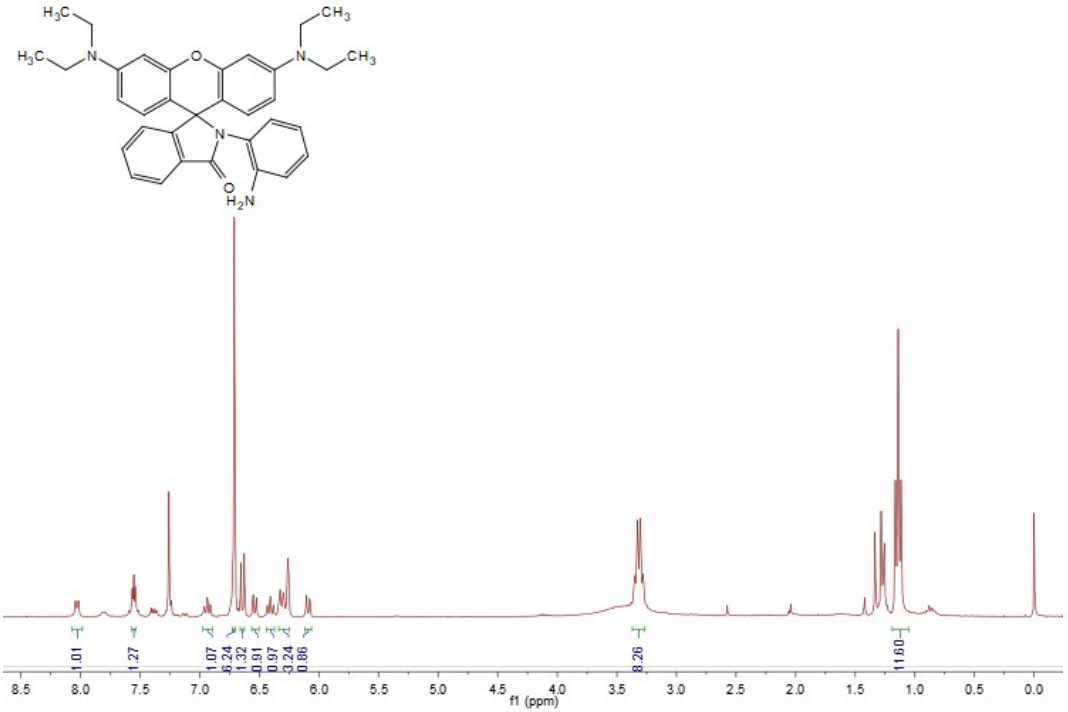


**Figure S2** $^{1}$H NMR of RhBs in $CDCl_3$

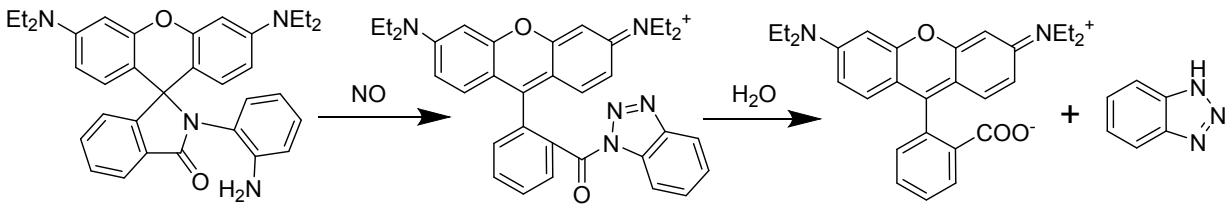


**Figure S3** The reaction mechanism of RhBs probing for NO.

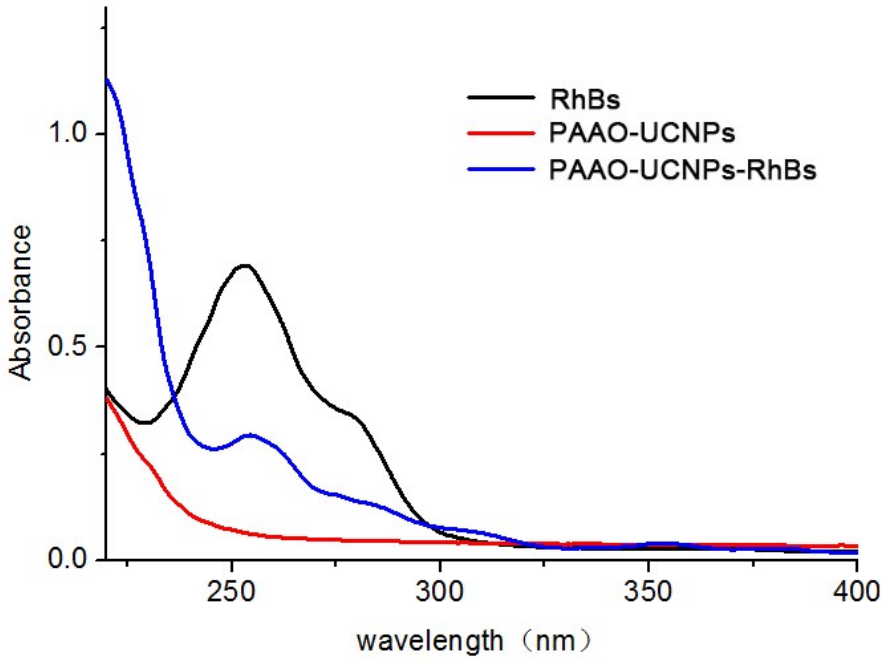


**Figure S4** Absorption of RhBs (black line), PAAO-UCNPs (red line) and PAAO-UCNPs-RhBs (blue line)

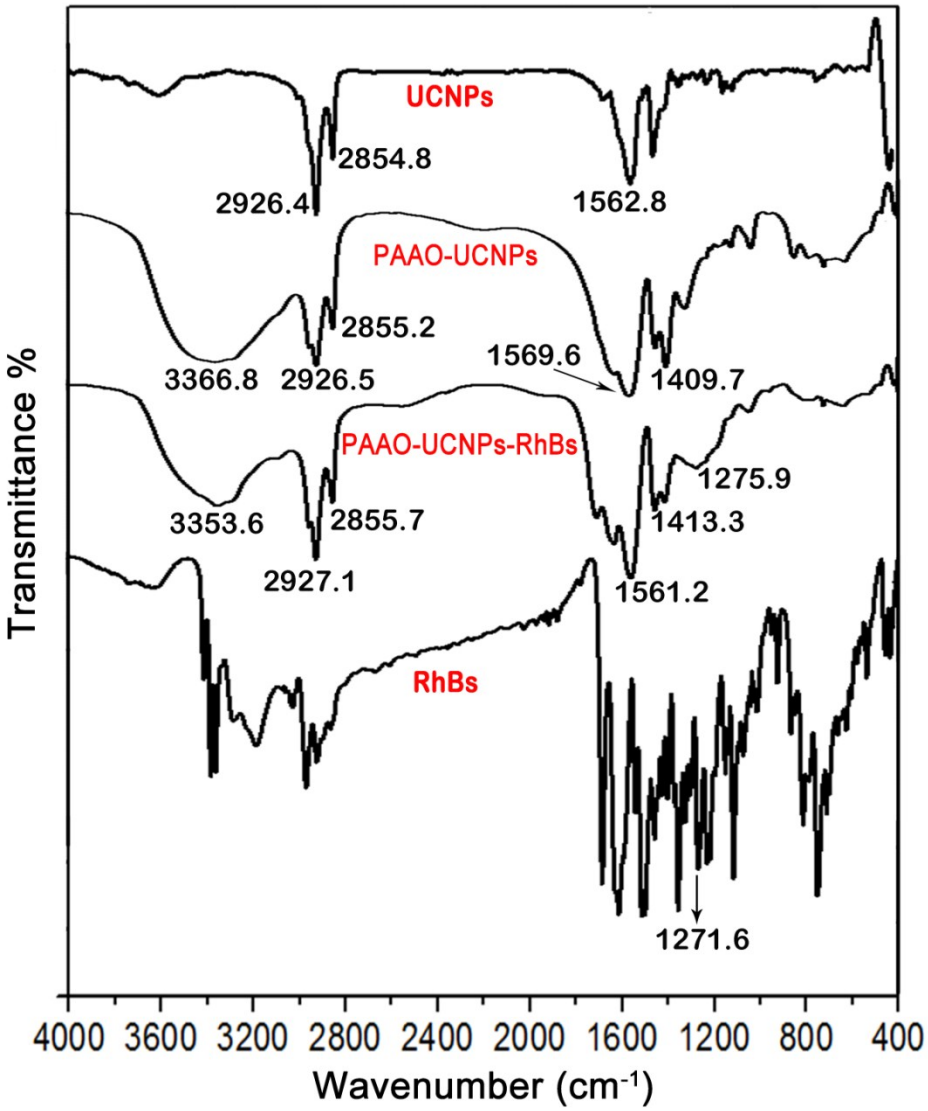


**Figure S5** The FTIR spectrum of UCNPs PAAO-UCNPs,PAAO-UCNPs-RhBs and RhBs.

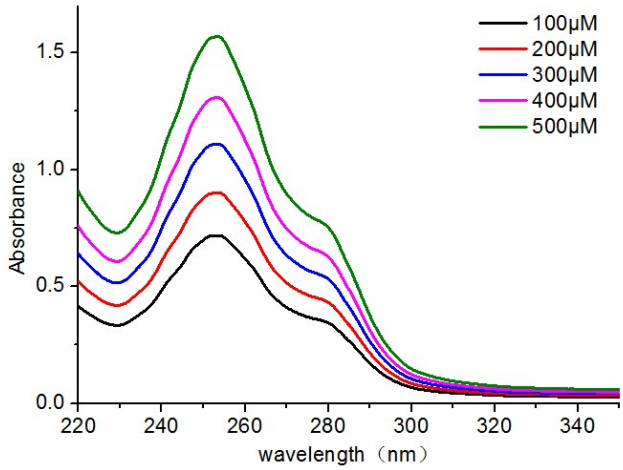


**Figure S6** Absorption spectra of RhBs with different concentration of 100μM,200μM, 300μM, 400μM, 500μM

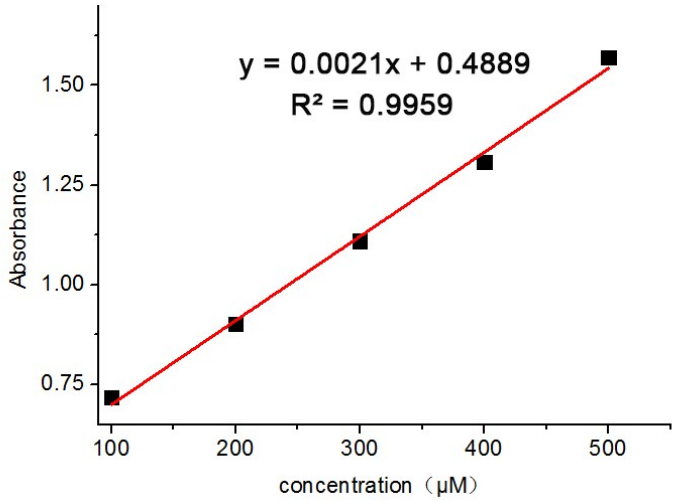


**Figure S7** The absorbance of RhBs at 253nm with different concentration of 100μM,200μM, 300μM, 400μM, 500μM

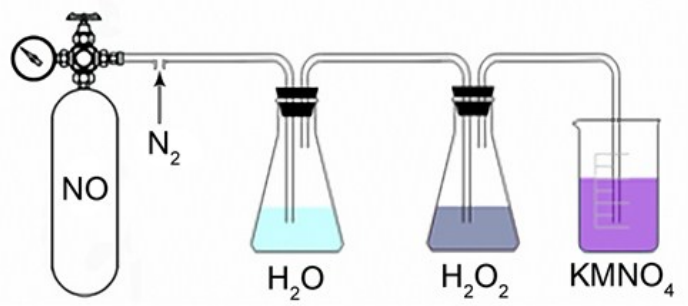


**Figure S8** The schematic diagram for the preparation of NO solution.

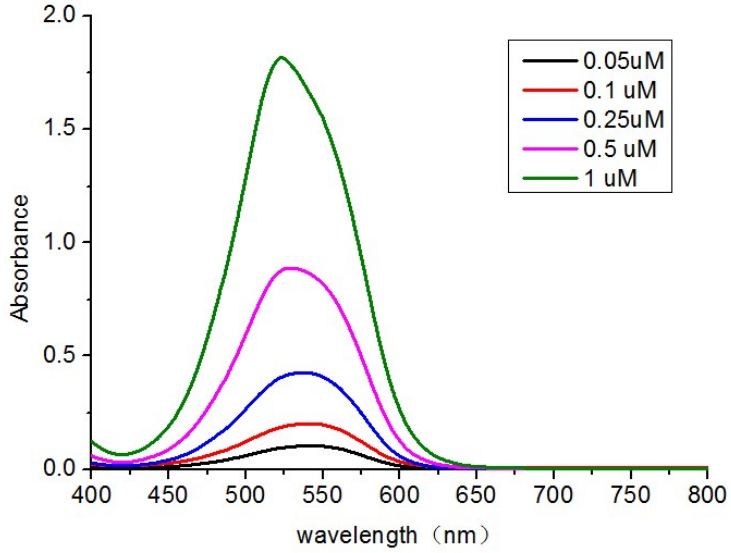


**Figure S9** Absorption spectra of Griess Reagent with different concentration of 0.05μM,0.1μM, 0.25μM, 0.5μM, 1μM

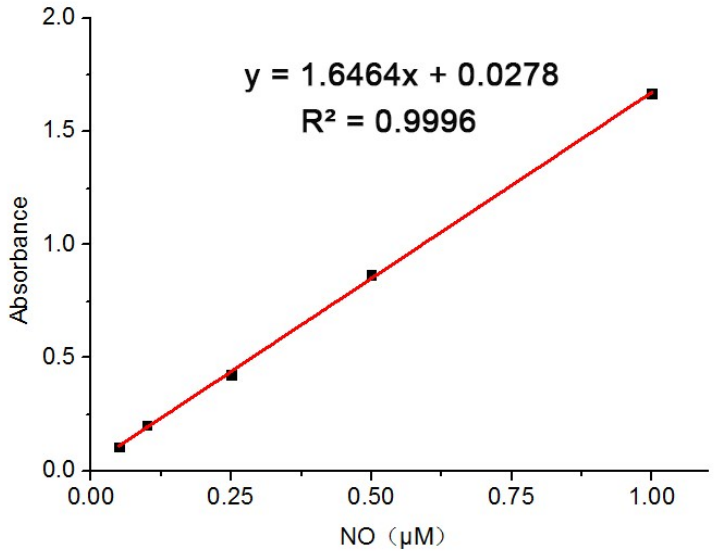


**Figure S10** The absorbance of Griess Reagent at 540nm with different concentration of 0.05μM,0.1μM, 0.25μM, 0.5μM, 1μM

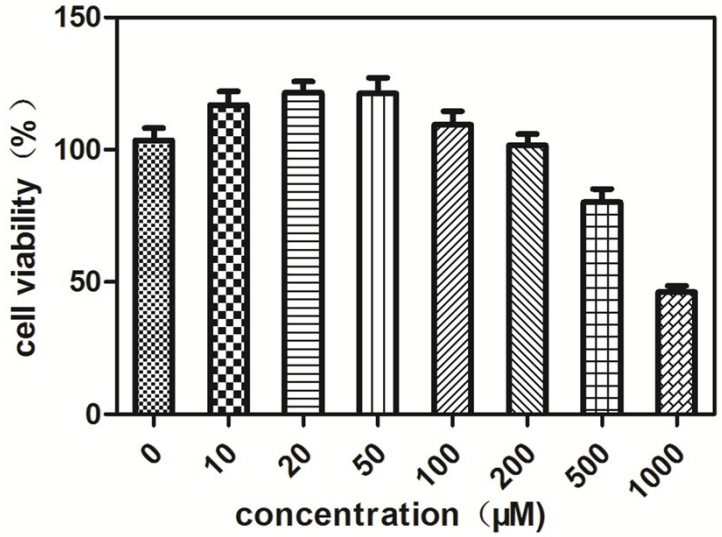


**Figure S11** Cell viability of HepG2 cells after adding SNP at different concentrations with 24h incubation

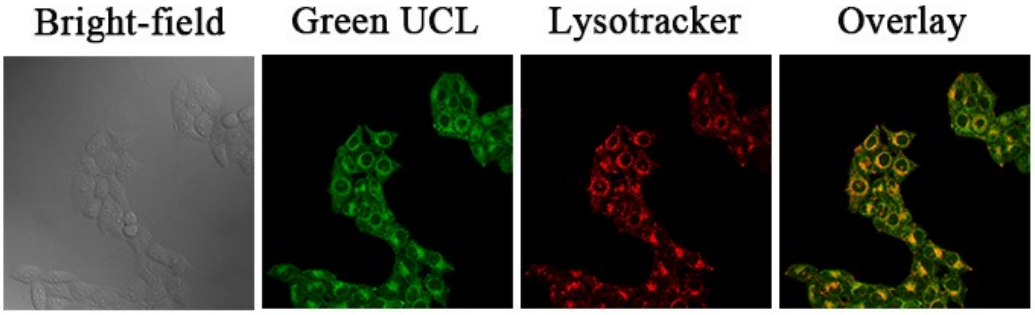


**Figure S12** The distribution of PAAO-UCNPs in HepG2 cells

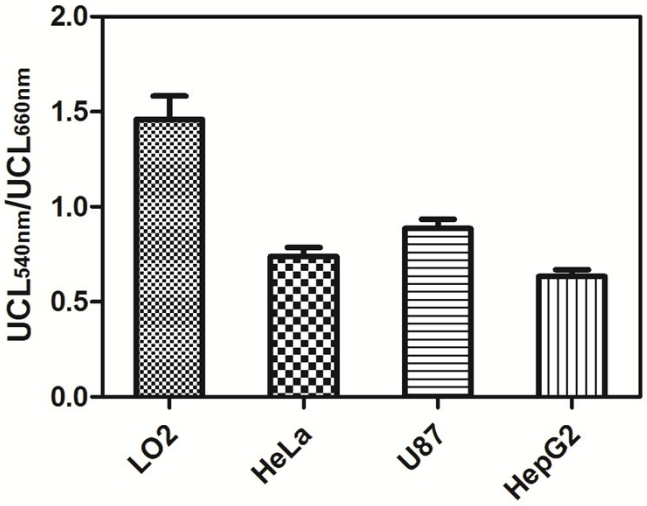


**Figure S13** The ratio of $UCL_{540nm}$ and $UCL_{660nm}$ in different cell lines (LO2, U87, HepG2, HeLa) by quantifying the intensity of $UCL_{540nm}$ and $UCL_{660nm}$ in different cell lines, respectively.

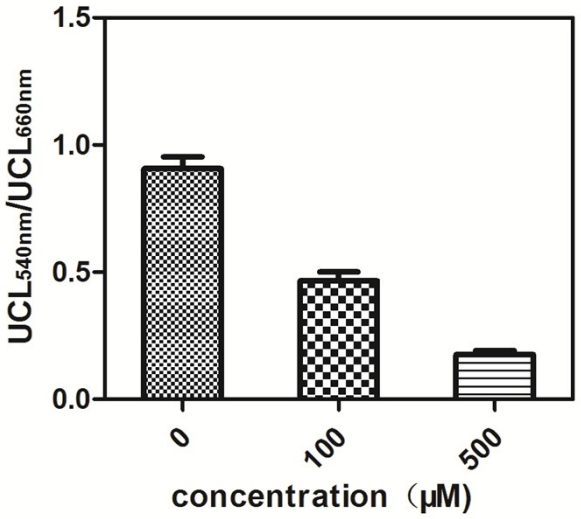


**Figure S14** The ratio of $UCL_{540nm}$ and $UCL_{660nm}$ in HepG2 cells by quantifying the intensity of $UCL_{540nm}$ and $UCL_{660nm}$.

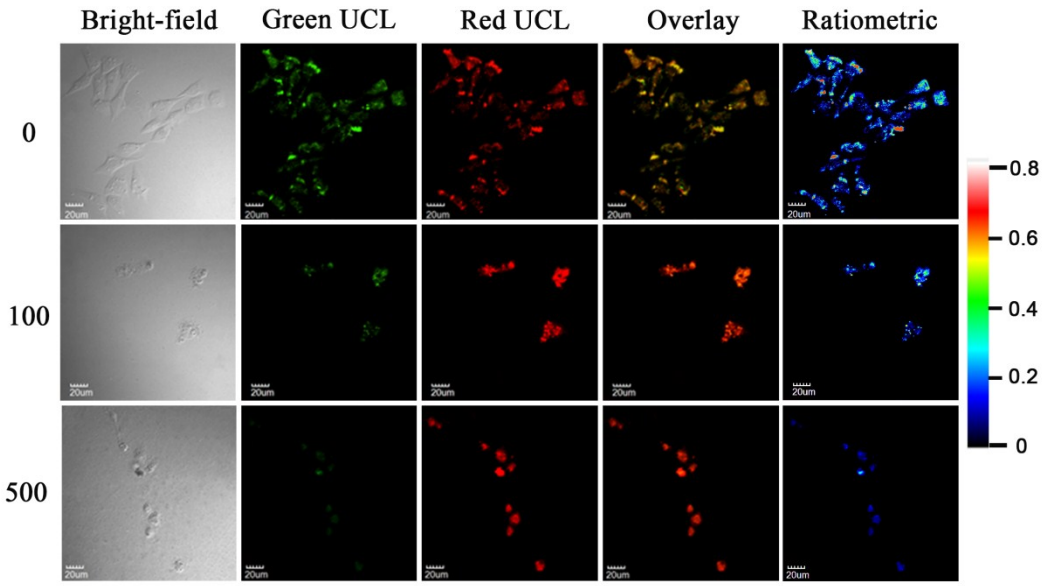


**Figure S15 (A)** The UCL images in 0,100,500μM SNP-pretreated U87 cells with the addition of nanoprobe (200μg $mL^{-1}$) for 24h incubation.

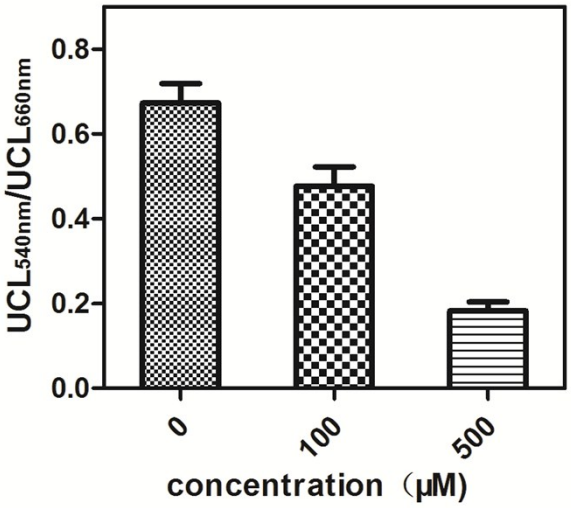


**Figure S16** The ratio of $UCL_{540nm}$ and $UCL_{660nm}$ in U87 cells by quantifying the intensity of $UCL_{540nm}$ and $UCL_{660nm}$.

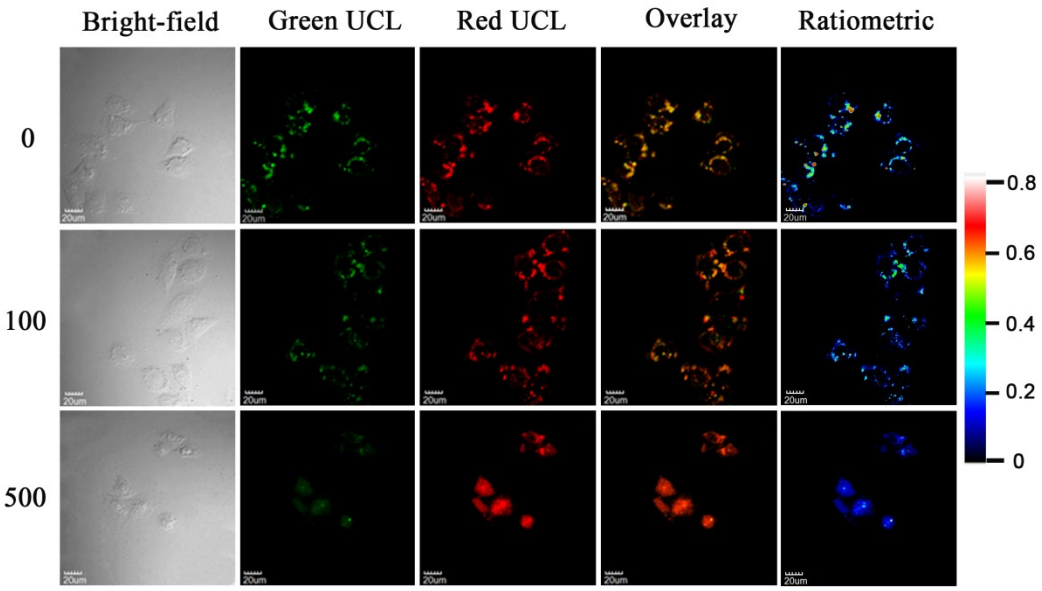


**Figure S17** The UCL images in 0,100,500μM SNP-pretreated HeLa cells with the addition of nanoprobe (200μg $mL^{-1}$) for 24h incubation.

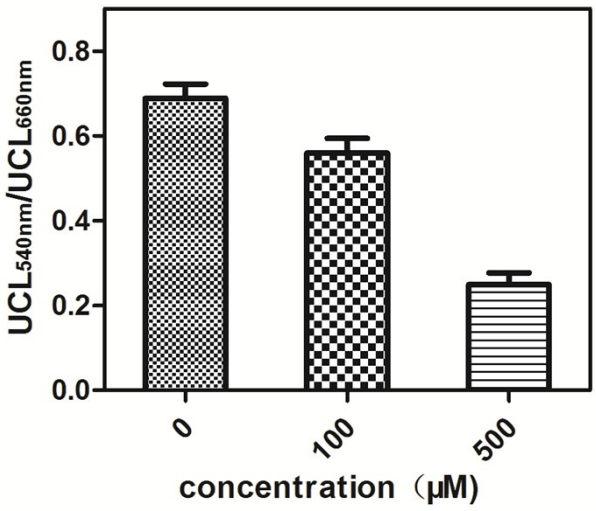


**Figure S18** The ratio of $UCL_{540nm}$ and $UCL_{660nm}$ in HeLa cells by quantifying the intensity of $UCL_{540nm}$ and $UCL_{660nm}$.

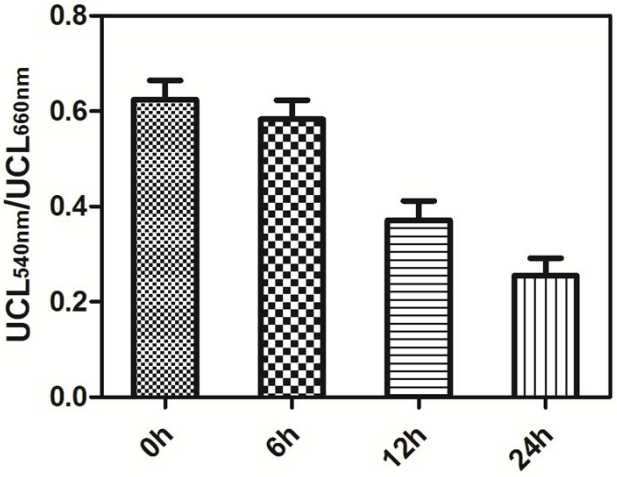


**Figure S19** The ratio of $UCL_{540nm}$ and $UCL_{660nm}$ in HepG2 cells by quantifying the intensity of $UCL_{540nm}$ and $UCL_{660nm}$ at different time, respectively.

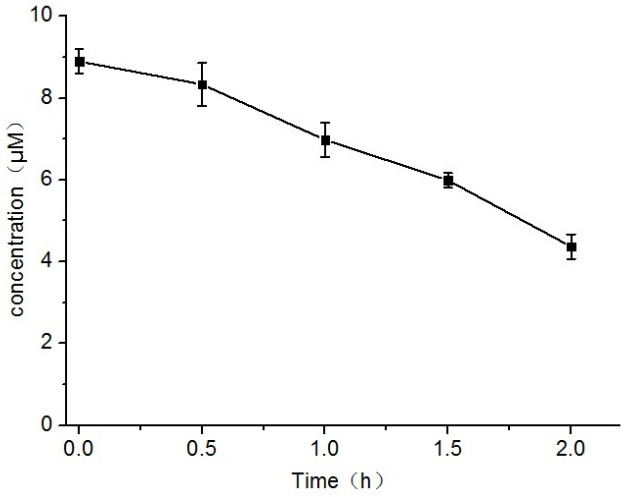


**Figure S20** The concentration changes of NO solution at different time