

## Supporting Information

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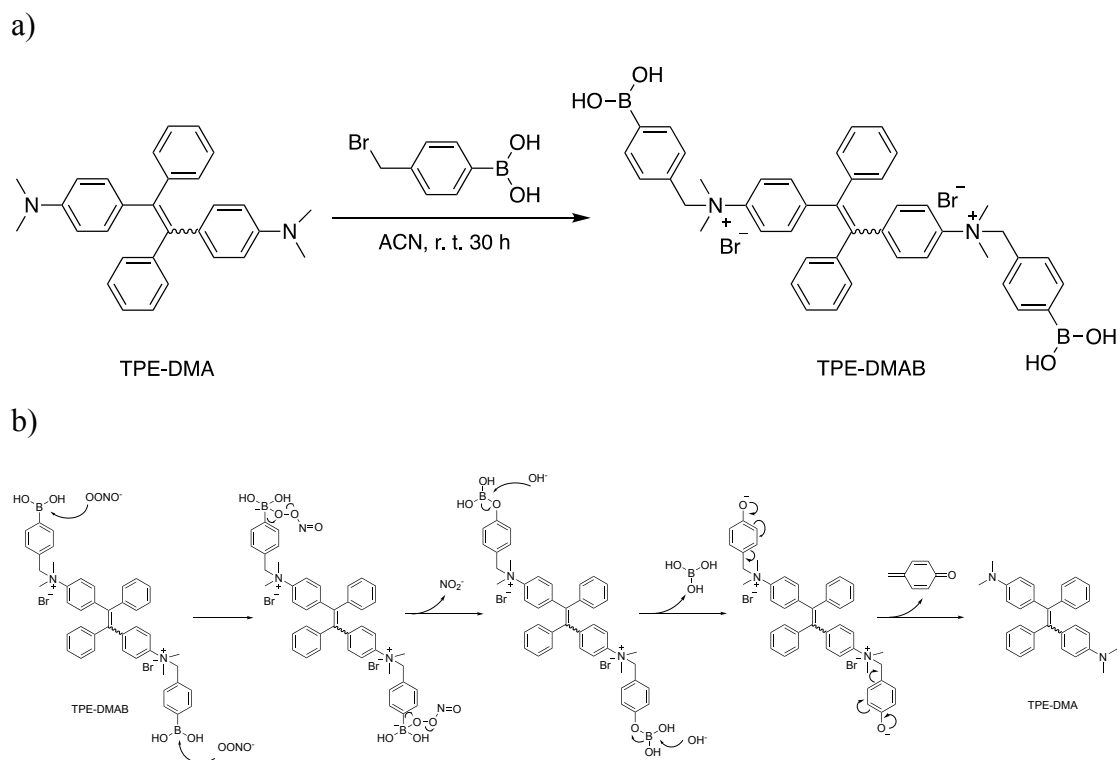
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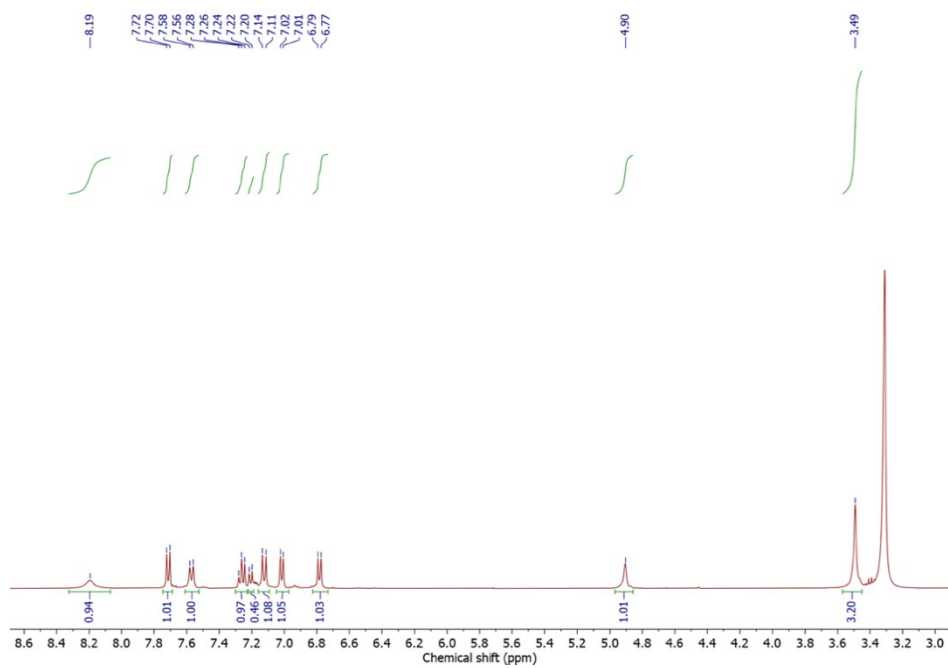
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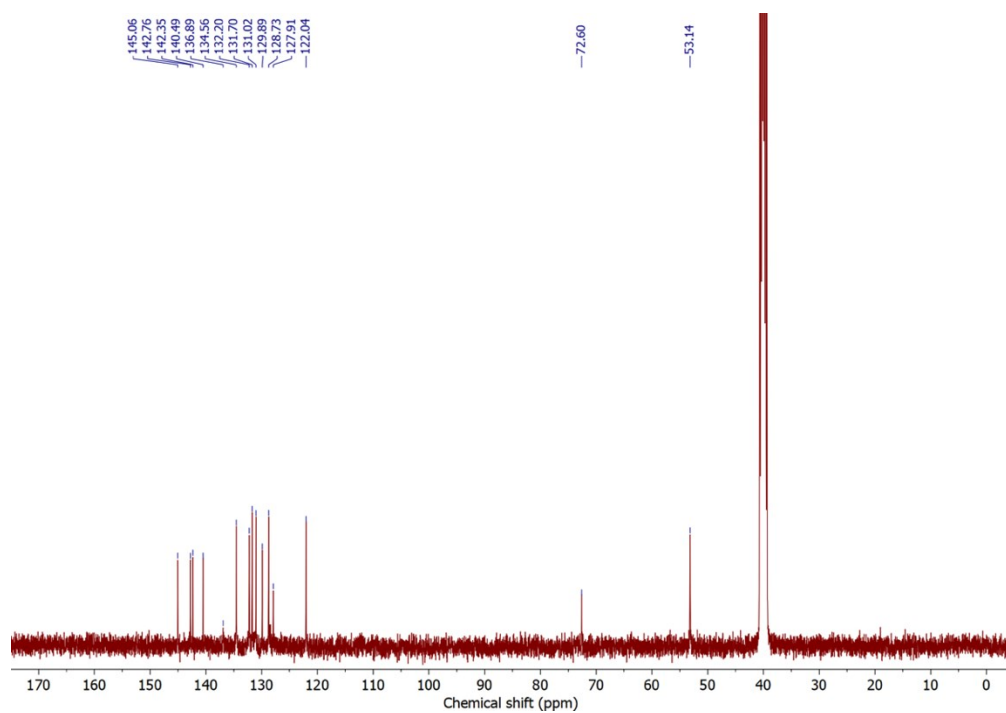
**Fig. S1** a) Synthetic route to TPE-DMAB. b) Proposed mechanism of conversion from TPE-DMAB to TPE-DMA in the presence of  $\text{ONOO}^-$ .

### Generation of various RONS:

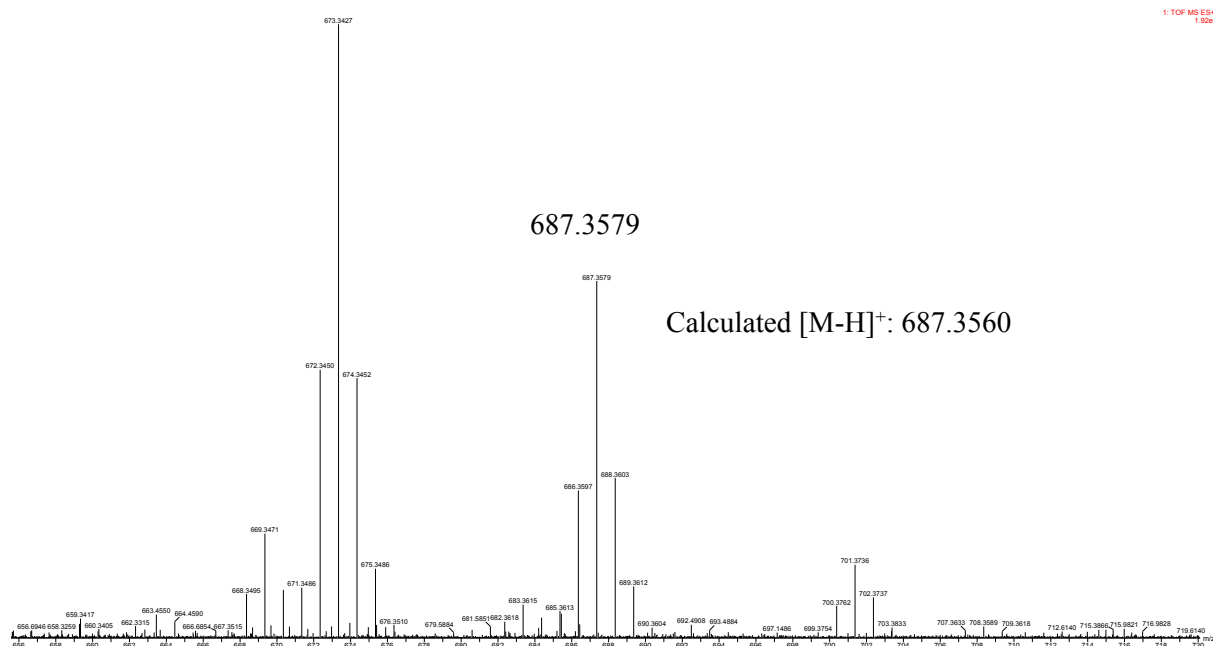
The different RONS were generated according to the literature<sup>S1</sup>.



**Fig. S2**  $^1\text{H}$  NMR spectrum ( $\text{CD}_3\text{OD}$ , 400 MHz, 298 K) of TPE-DMAB.



**Fig. S3**  $^{13}\text{C}$  NMR spectrum ( $\text{CD}_3\text{OD}$ , 400 MHz, 298 K) of TPE-DMAB.



**Fig. S4** ESI mass spectrum of TPE-DMAB.

### Determination of detection limit<sup>S2</sup>

The detection limit was calculated based on the fluorescence titration curve of TPE-DMAB in the presence of ONOO<sup>-</sup> (0-20  $\mu$ M). The fluorescence intensity of TPE-DMAB was measured eleven times and the standard deviation of the measurement was achieved. The detection limit was calculated by the following equation:

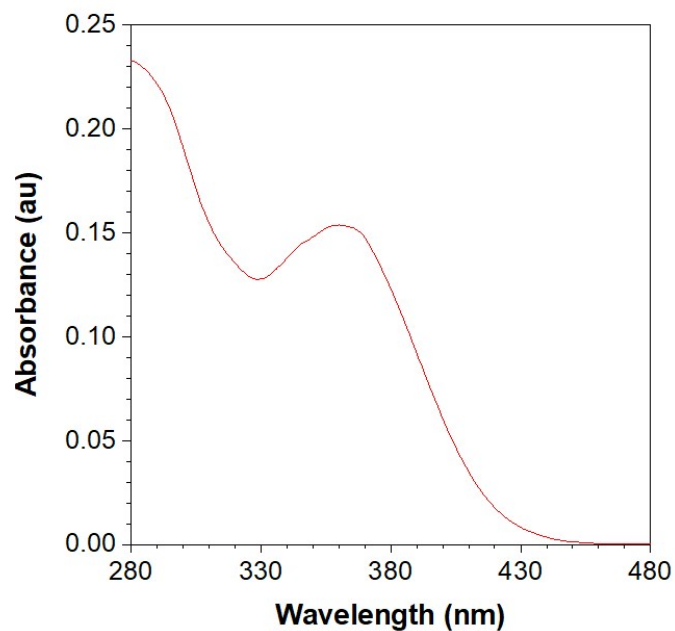
$$\text{Detection limit} = 3\sigma/\text{slope} = 54 \text{ nM}$$

Where  $\sigma$  is the standard deviation of the blank measurement, slope is the slope between the fluorescence ratios versus ONOO<sup>-</sup> concentrations.

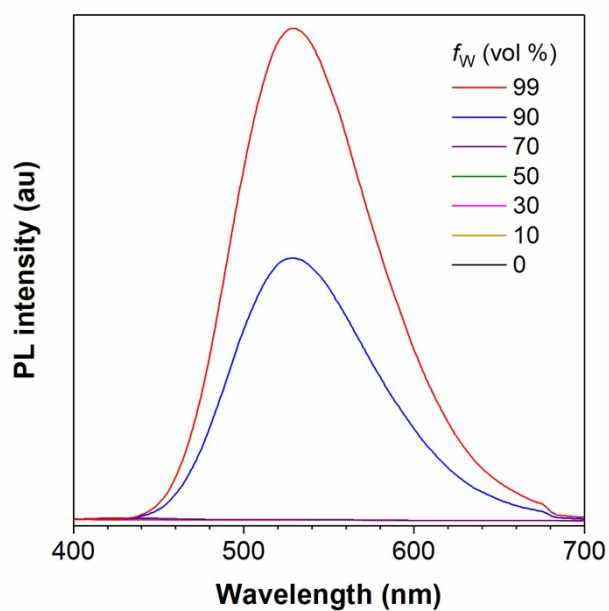
### Preparation of TPE-DMAB NPs<sup>S3</sup>

1,2-distearoyl-sn-glycero-3-phosphoethanolamine-N-[methoxy(poly-ethylene glycol)-2000] (DSPE-PEG<sub>2000</sub>) as the encapsulation matrix. When a DMSO solution of TPE-DMAB and DSPE-PEG<sub>2000</sub> was added to water under continuous sonication, AIE nanoparticles would form through self-assembly. After dialysis, the AIE nanoparticles

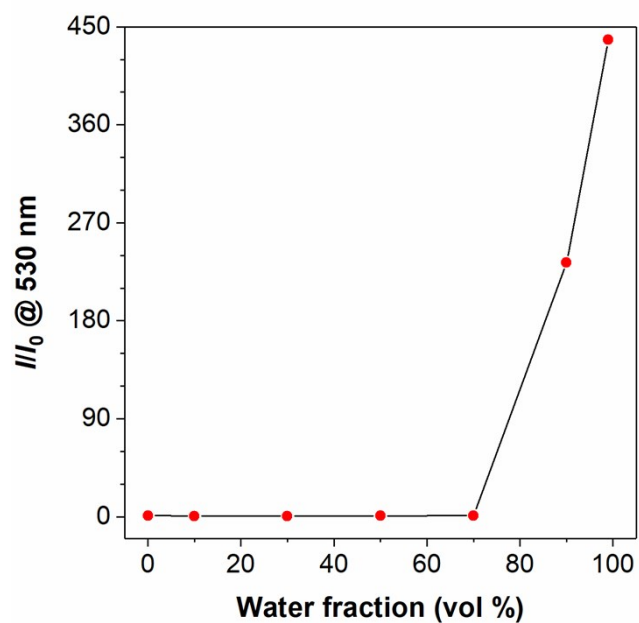
were further purified by ultrafiltration and by passing samples through a 0.3  $\mu\text{m}$  syringe filter to afford the TPE-DMAB NPs.



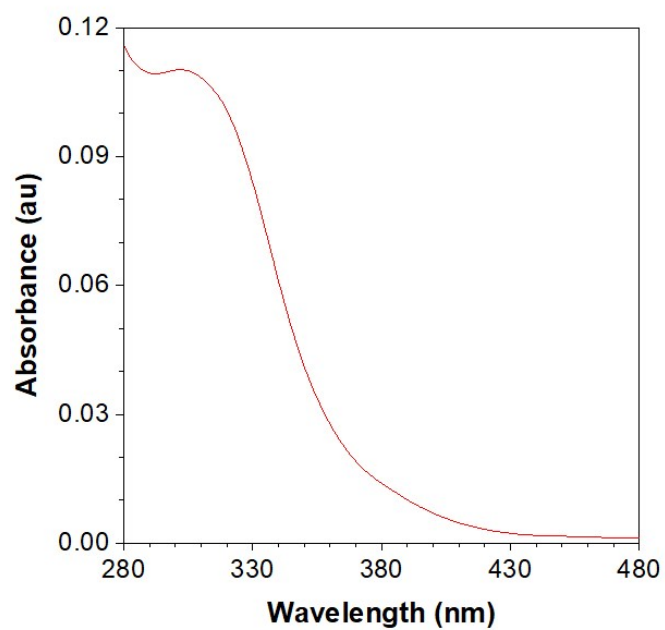
**Fig. S5** Absorption spectrum of TPE-DMA (10  $\mu\text{M}$ ) in THF.



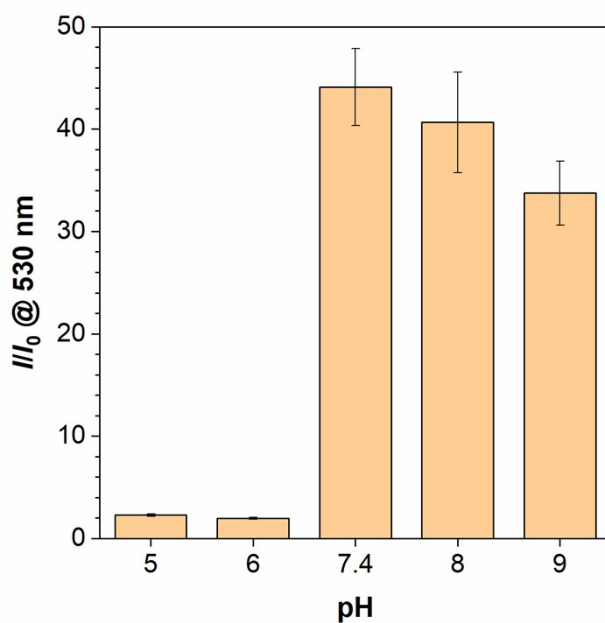
**Fig. S6** PL spectra of TPE-DMA (10  $\mu\text{M}$ ) in THF/water mixtures with different water fractions ( $f_w$ ). Excitation wavelength: 360 nm.



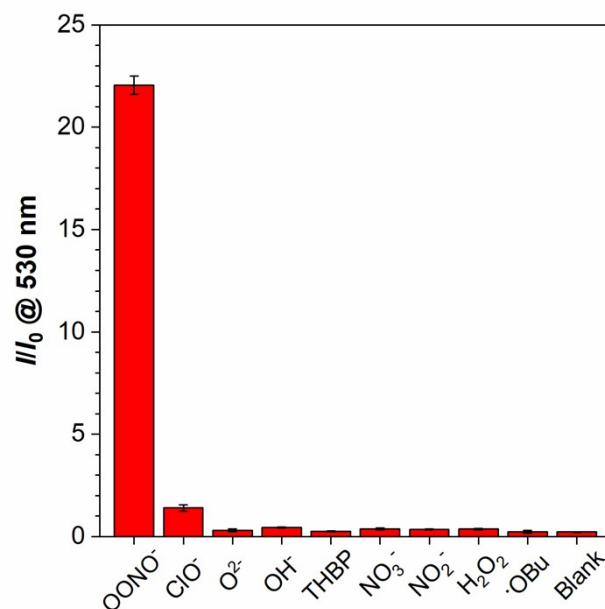
**Fig. S7** Plot of  $I/I_0$  in THF/water mixtures versus water fractions.  $I_0$  and  $I$  are the PL intensities of TPE-DMA ( $10 \mu\text{M}$ ) in THF and THF/water mixtures, respectively.



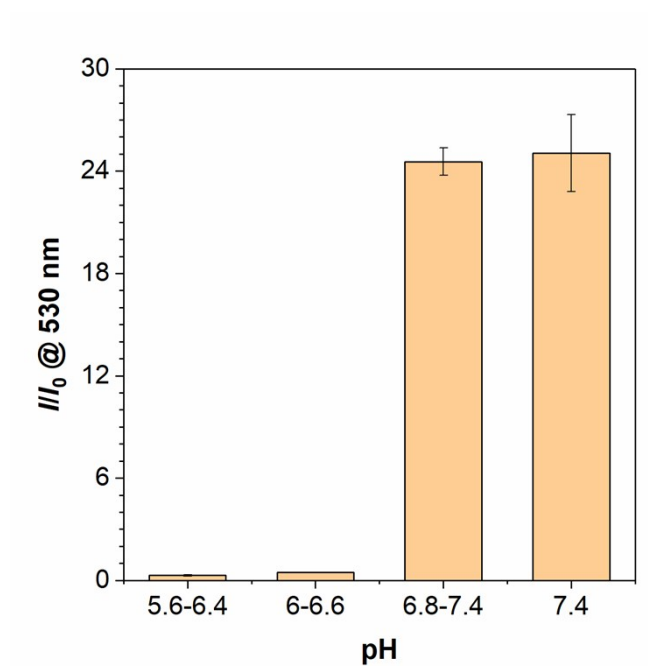
**Fig. S8** Absorption spectrum of TPE-DMAB ( $10 \mu\text{M}$ ) in DMSO.



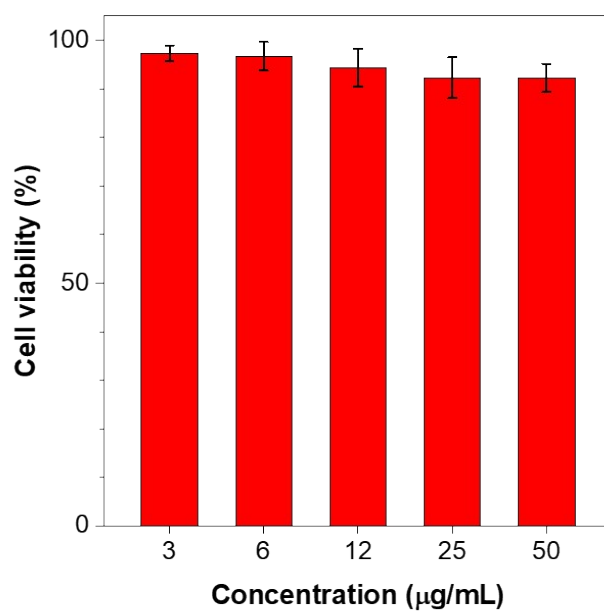
**Fig. S9** Effect of pH of TPE-DMAB (10  $\mu$ M) on  $I/I_0$  in the presence of  $\text{ONOO}^-$  (10  $\mu$ M).  $I$  and  $I_0$  are the PL intensities with and without addition of  $\text{ONOO}^-$ , respectively. Incubation time: 10 min.



**Fig. S10** Plot of  $I/I_0$  versus various reactive oxygen and nitrogen species (RONS) in PBS buffer (pH 7.4).  $I$  and  $I_0$  are the PL intensities of TPE-DMAB NPs in the presence and absence of RONS, respectively. Incubation time: 10 min.

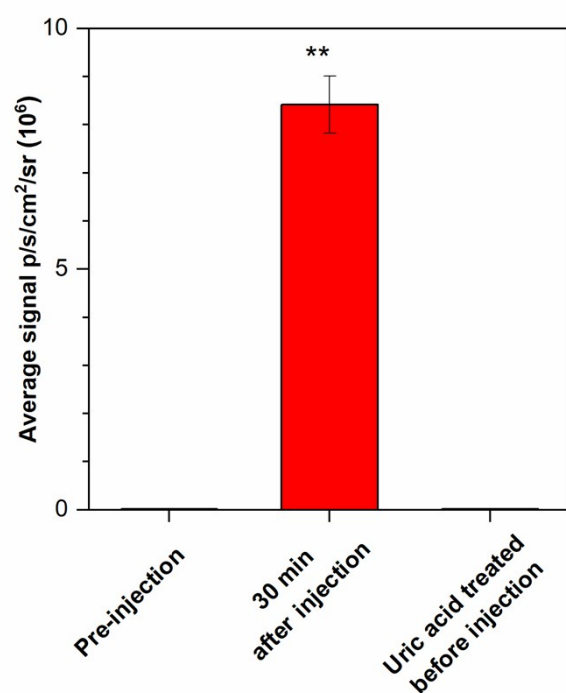


**Fig. S11** Effect of pH of TPE-DMAB NPs on  $I/I_0$  in the presence of  $\text{ONOO}^-$ .  $I$  and  $I_0$  are the PL intensities with and without addition of  $\text{ONOO}^-$ , respectively. Incubation time: 10 min.

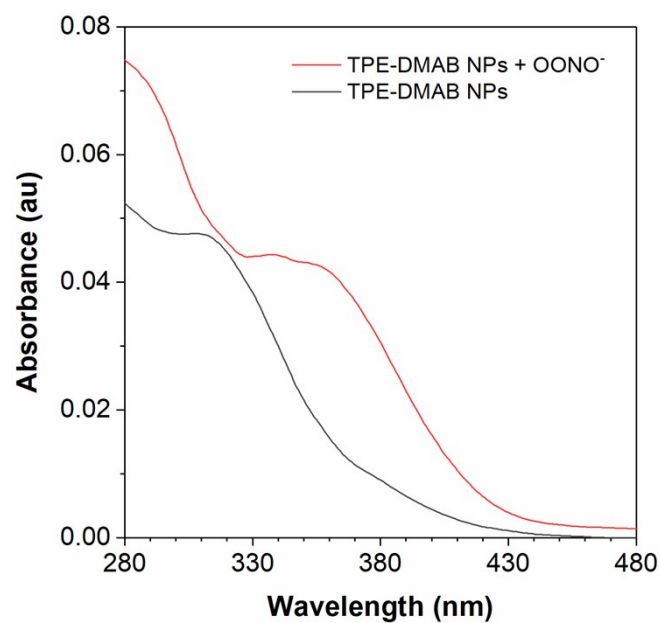


**Fig. S12** Cytotoxicity experiments: TPE-DMAB NPs were evaluated on 4T1 cell by MTT assay. Incubation time: 6 h.





**Fig. S13** The quantified average fluorescence in the infected skins from mice injected with TPE-DMAB NPs (n = 3). \*\* represents  $P < 0.01$  versus TPE-DMAB NPs injected. LPS (1 $\mu$ g) in PBS buffer was injected 4h before administration of TPE-DMAB NPs.



**Fig. S14** Absorption spectra of TPE-DMAB NPs with and without ONOO<sup>-</sup> incubation in PBS buffer (pH = 7.4).

## References

- [S1] X. Jia, Q. Chen, Y. Yang, Y. Tang, R. Wang, Y. Xu, W. Zhu and X. Qian, FRET-based mito-specific fluorescent probe for ratiometric detection and imaging of endogenous peroxynitrite: dyad of Cy3 and Cy5, *J. Am. Chem. Soc.*, 2016, **138**, 10778-10781.
- [S2] W. Zhang, H. Wang, F. Li, Y. Chen, R. T. K. Kwok, Y. Huang, J. Zhang, J. Hou and B. Z. Tang, A ratiometric fluorescent probe based on AIEgen for detecting HClO in living cells, *Chem. Commun.*, 2020, **56**, 14613.
- [S3] D. Ding, C. Goh, G. Feng, Z. Zhao, J. Liu, R. Liu, N. Tomczak, J. Geng, B. Z. Tang, L. G. Ng and B. Liu, Ultrabright organic dots with aggregation-induced emission characteristics for real-time two-photon intravital vasculature imaging, *Adv. Mater.*, 2013, **25**, 6083-6088.