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## **Supporting information**

## Dimerization of heavy atom free tetraphenylethylene with aggregation

## induced emission for boosting photodynamic therapy

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Figure S1 <sup>1</sup>HNMR spectrum of **BTPE** in CDCl<sub>3</sub>



Figure S2<sup>13</sup>CNMR spectrum of **BTPE** in CDCl<sub>3</sub>

**(b)** 



Figure S3 (a)Absorbance spectra of **BTPE** NPs in water with different concentrations; (b) Linear fitting of the absorbance.



Figure S4 Fluorescence enhancement of SOSG in the presence of (a) **TPE** NPs; (b) **BTPE** NPs; (c) **MB** and (d) none with irradiation.



Figure S5 Absorbance spectra of **BTPE** NPs before and after irradiation.