BODIPY-Mn Nanoassemblies for Accurate MRI and Phototherapy of Hypoxia Cancer

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Fig. S1 IR spectra of PdpaMn (a) and Mn-DBA (b)
**Fig. S2.** UV-vis absorption spectra of PdpaMn (black dash line, 50 μM), Mn-DBA (black line, 50 μM) and DBA (blue line, 50 μM) in CH₃CN solution.

**Fig. S3.** Fluorescence emission spectra for Mn-DBA (blue line, 1 μM) and DBA (black line, 1 μM) in CH₃CN solution. The excitation wavelength was 640 nm.
**Fig. S4.** Zeta potentials of Mn-DBA@BSA-PF NPs.

**Fig. S5.** FT-IR spectra of (a) Mn-DBA composites, (b) Mn-DBA@BSA nanoparticles, (c) Mn-DBA@BSA-PF nanoparticles.
**Fig. S6.** PXRD patterns of PdpaMn (a) and Mn-DBA@BSA-PF NPs (b).

**Fig. S7.** Resonance Raman spectroscopy of the Mn-DBA@BSA-PF nanoparticles.
Fig. S8. The released Mn and DBA of Mn-DBA@BSA-PF NPs in different pH buffer solution (1 mg mL\(^{-1}\)) with change of time. (A) the percentage of unreleased Mn\(^{2+}\) ion; (B) the emission change of released DBA in filtrate of Mn-DBA@BSA-PF NPs at 655 nm.
**Fig. S9.** The O₂ production from an aqueous solution containing PdpaMn (5 mg) under blue LED light (630–700 nm, 4 W) at different pH (☆, aqueous phosphate buffer (PBS) solution, pH 5.0; ★, PBS solution, pH 7.4; ▲, PBS solution, pH 8.5).

**Table 1S.** TON and TOF values of PdpaMn.

<table>
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<th>additives</th>
<th>O₂ (μmol)</th>
<th>TON</th>
<th>TOF (min⁻¹)</th>
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<tr>
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<td>PdpaMn</td>
<td>PdpaMn</td>
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<tr>
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<td>5.78</td>
<td>18.64</td>
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Figure S10. (a) Photothermal effect of the Mn-DBA@BSA-PF NPs suspensions irradiated with a red LED light for 20 min (4 W). After 20 min illumination the light was turn off, and the temperature of the Mn-DBA@BSA-PF NPs suspensions was recorded. (b) Plot of cooling time versus $-\ln\theta$ calculated from the cooling stage.
Figure S11. Cytotoxicity of the nanocomplex on SMMC-7721 and MCF-7 cells.

Figure S12. Cytotoxicity of the Mn-DBA on HepG-2 cells with light or without light.
**Figure S13.** (A) The time dependent level of Mn in tumor after injection; (B) the excretion of Mn in kidney with different days. The concentration of Mn was measured by ICP-AES. Error bars were based on standard deviation (SD) of three mice.

**Figure S14.** Colorimetric measurement of inhibition (% relative to control) of the enzymatic activity of LDH-A in the presence of Mn-DBA with light and without light.