Supporting Information

Blood Dot: Hemoglobin Derived Carbon Dot as Hydrogen Peroxide Sensor and Pro-Drug Activator

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Number of pages: 11
Number of figures: 10

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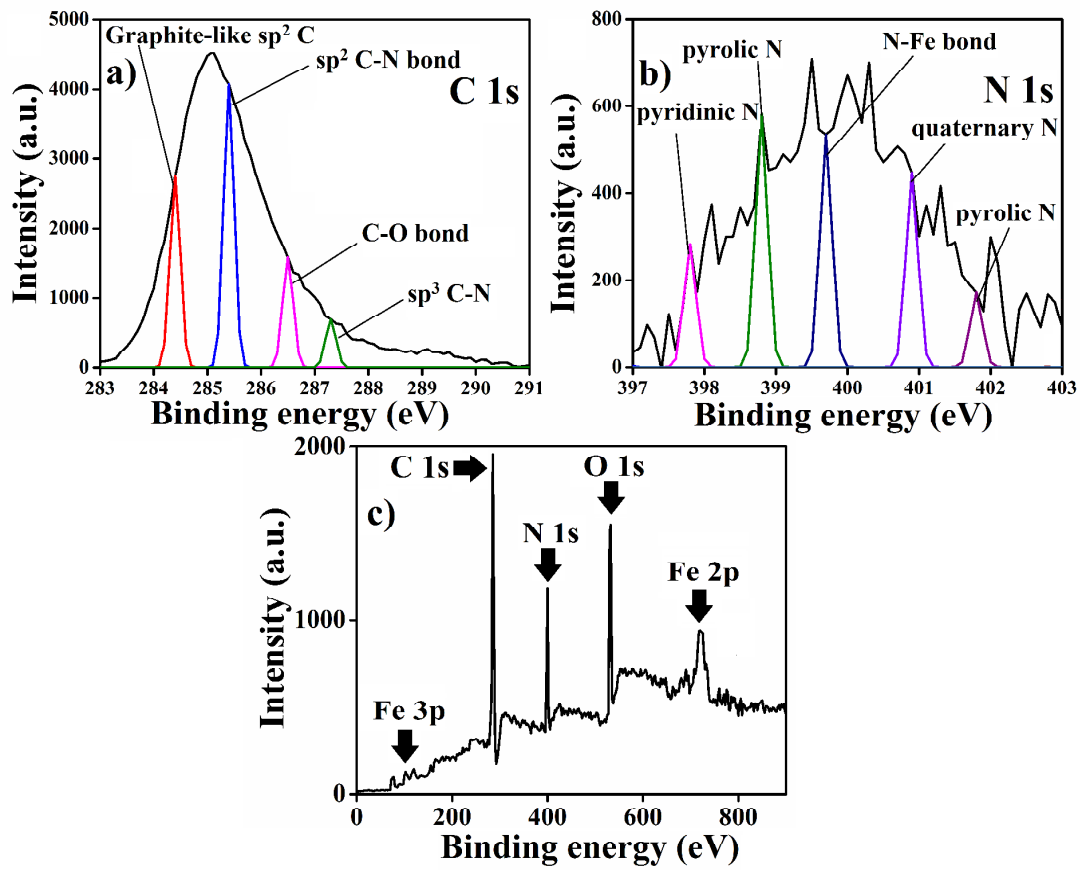

Figure S1. High resolution XPS spectra of a) C 1s orbital, b) N 1s orbital of BD and c) XPS spectra of native hemoglobin powder.

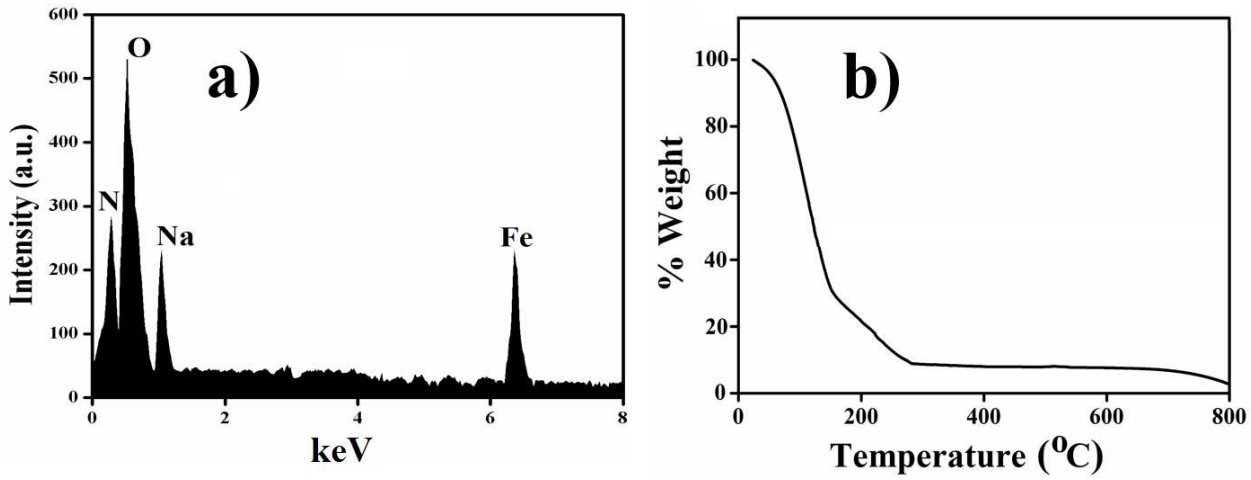

Figure S2. a) EDX analysis of BD. Sample was crusted on carbon coated Cu grid for the experiment. Thus, C content was not included in EDX analysis and b) TGA thermogram of BD.

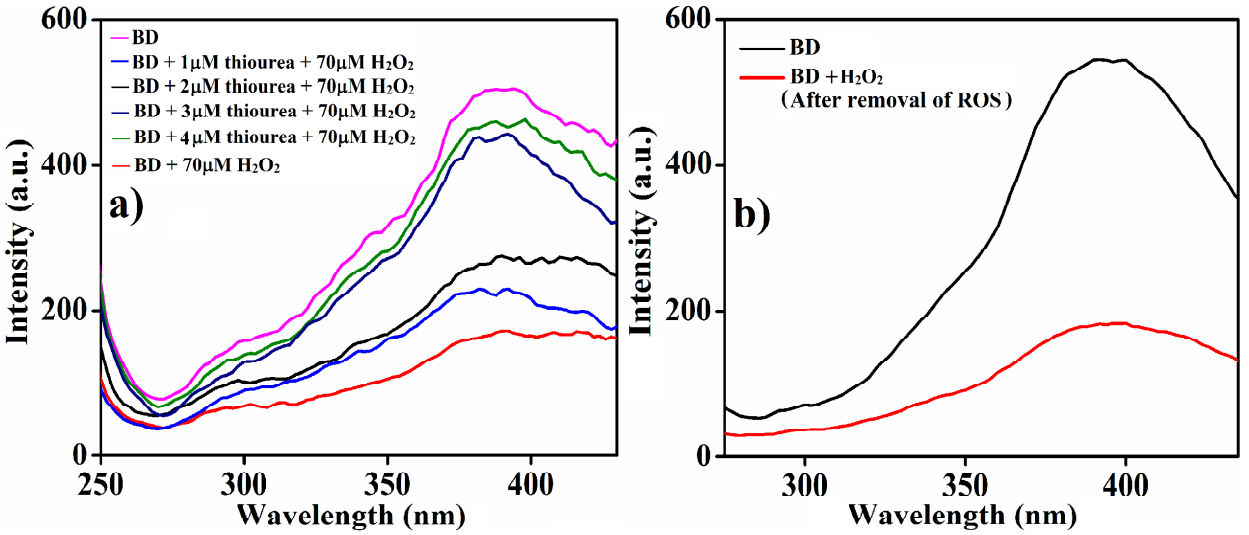

Figure S3. a) Fluorescence quenching of blood dot solution in presence of H_2O_2 before and after addition of thiourea and b) fluorescence behaviour of H_2O_2 treated BD after removal of ROS (reactive oxygen species).

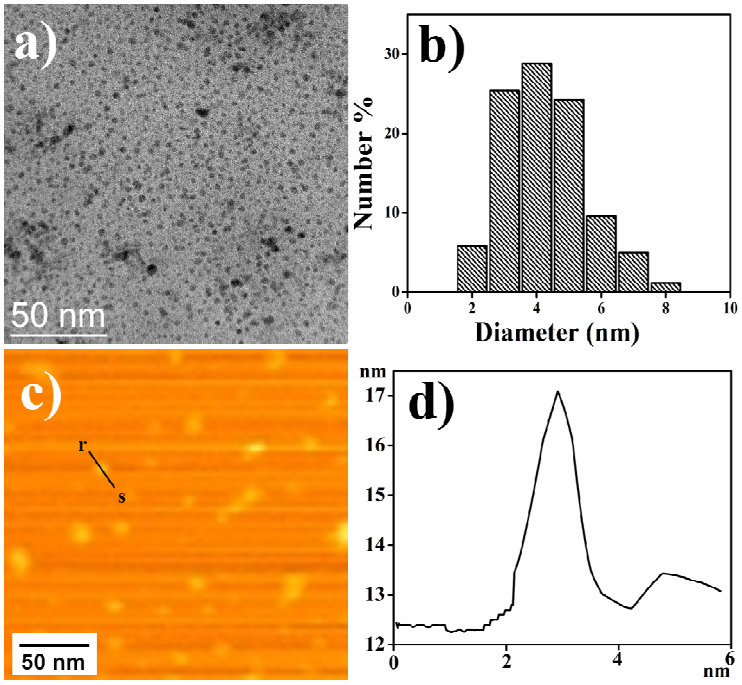

Figure S4. a) TEM, b) size distribution histogram, c) AFM and d) height profile along r-s in part a of porphyrin dot.

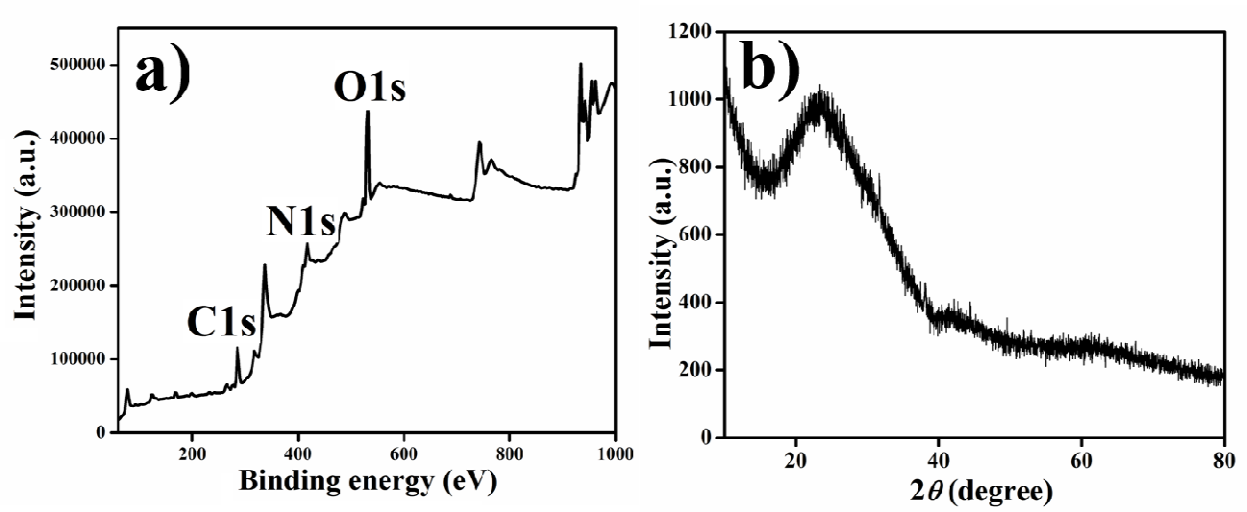

Figure S5. a) XPS and b) XRD spectra of porphyrin dot.

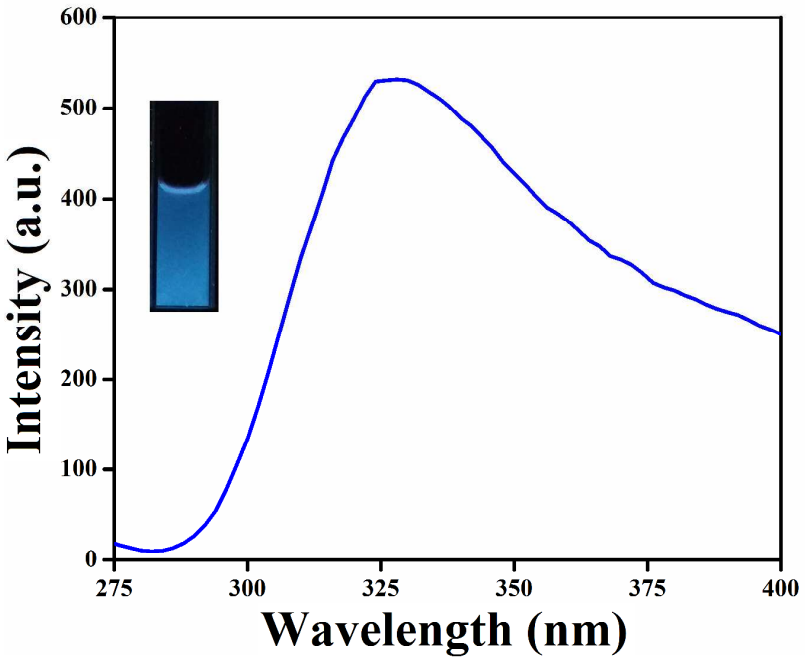

Figure S6. Emission spectra of porphyrin dot upon excitation at 240 nm (inset: blue fluorescence of porphyrin dot solution under UV irradiation).

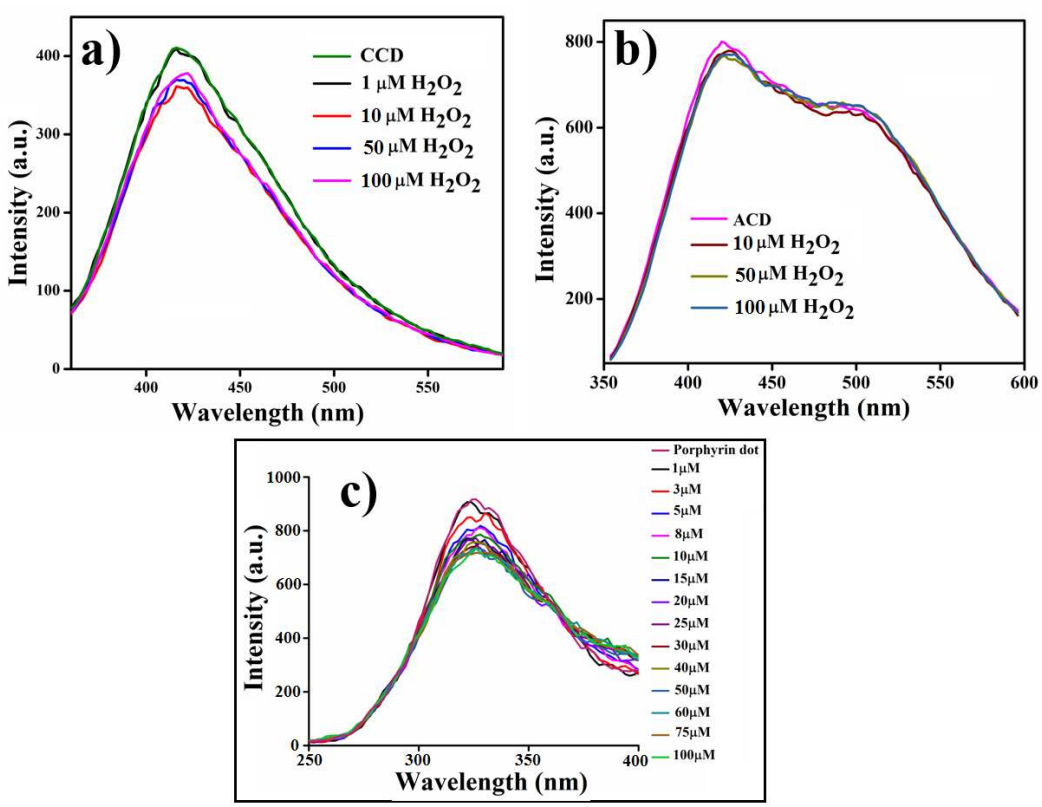

Figure S7. Fluorescence spectra of a) cationic carbon dot (CCD), b) anionic carbon dot (ACD) and c) porphyrin dot in presence of different concentration of H_2O_2.

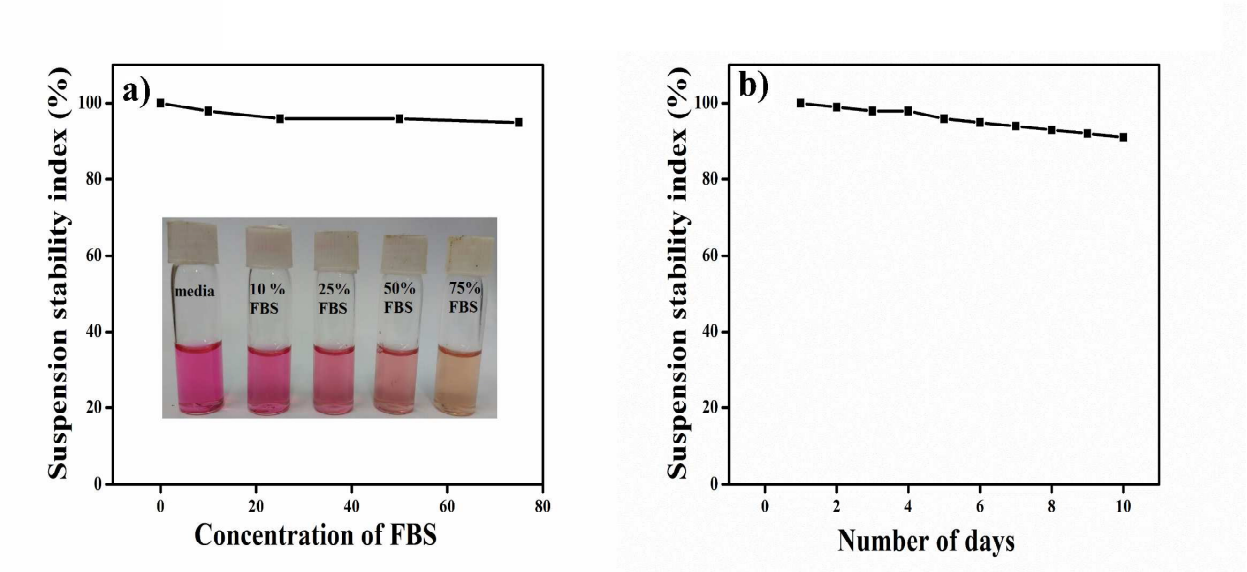

Figure S8. Suspension stability index of blood dot solution (100 μg/mL) with respect to a) FBS concentration (0-75%) in DMEM media and b) number of days in 10% FBS in DMEM media.

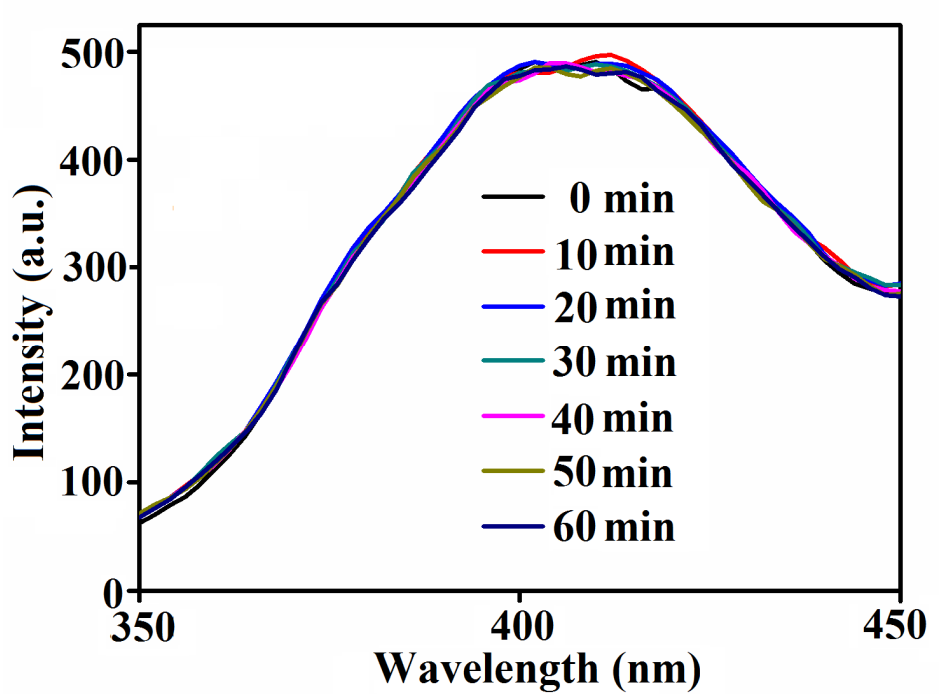

Figure S9. Photostability of blood dot solution under UV (wavelength 365 nm, power 12 W) light irradiation up to 60 min. Blood dot solution was excited at 230 nm.

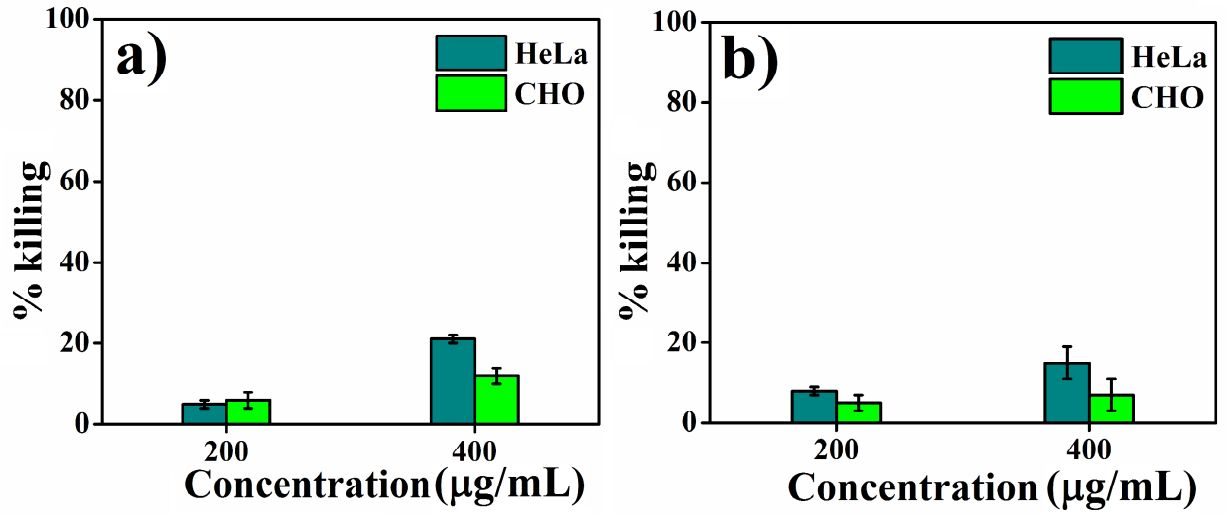

Figure S10. % Killing of cells determined by MTT assay. HeLa and CHO cells incubated with varying concentrations of a) Ferrous sulphate and b) hemoglobin powder for 12 h. The experimental errors were in the range of 3-5% in triplicate experiments.