

# Enhanced Cancer Starvation Therapy Based on Glucose Oxidase/3-Methyladenine-Loaded Dendritic Mesoporous Organosilicon Nanoparticles

Fan Wu <sup>1,†</sup>, Yang Liu <sup>2,†</sup>, Hui Cheng <sup>2,†</sup>, Yun Meng <sup>1</sup>, Jieyun Shi <sup>1</sup>, Yang Chen <sup>1</sup> and Yelin Wu <sup>1,\*</sup>

<sup>1</sup> Tongji University Cancer Center, Shanghai Tenth People's Hospital, Tongji University School of Medicine, Shanghai 200072, China; 18844191898@163.com (F.W.); 18356070780@163.com (Y.M.); 15800870206@163.com (J.S.); fc9091@163.com (Y.C.)

<sup>2</sup> Shanghai Key Laboratory of Green Chemistry and Chemical Processes, School of Chemistry and Molecular Engineering, East China Normal University, Shanghai 200062, China; ly92\_pharmacy@163.com (Y.L.); haotianchenghui@163.com (H.C.)

\* Correspondence: sk\_wuyelin@tongji.edu.cn

† These authors contributed equally to this work.

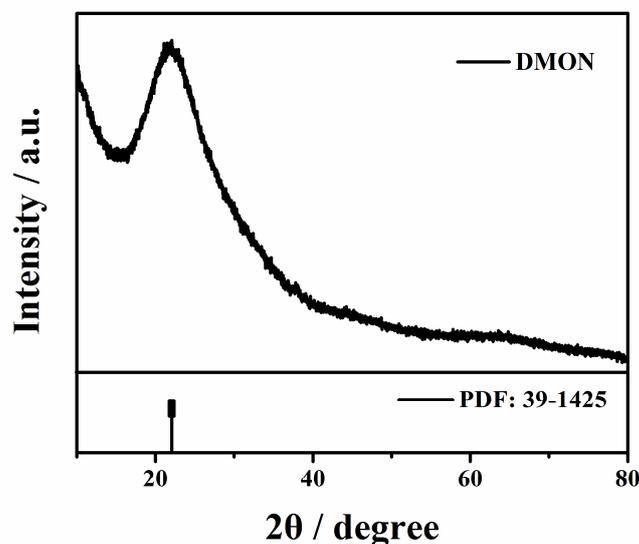
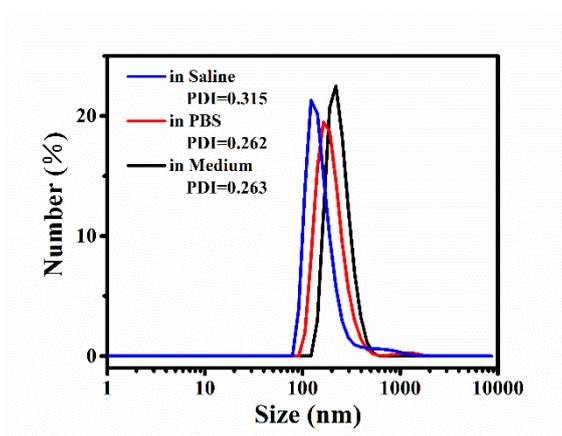
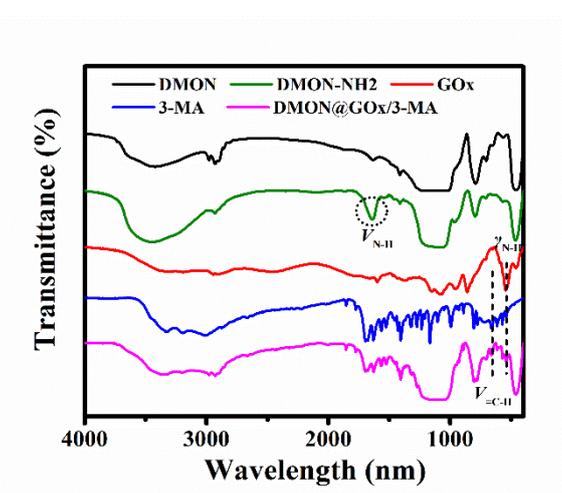


Figure S1. X-ray diffraction (XRD) pattern of DMON nanoparticles.



**Figure S2.** Dynamic light scattering (DLS) data of DMON@GOx/3-MA nanoparticles in different solutions.



**Figure S3.** Fourier transform infrared (FTIR) spectra of GOx, 3-MA, DMON, DMON-NH<sub>2</sub> and DMON@GOx/3-MA.

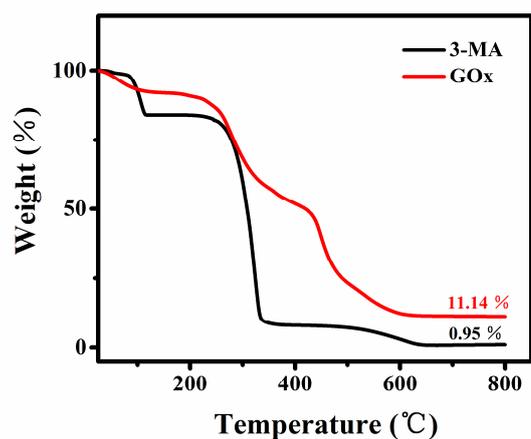


Figure S4. Thermogravimetric (TG) curves of GOx and 3-MA.

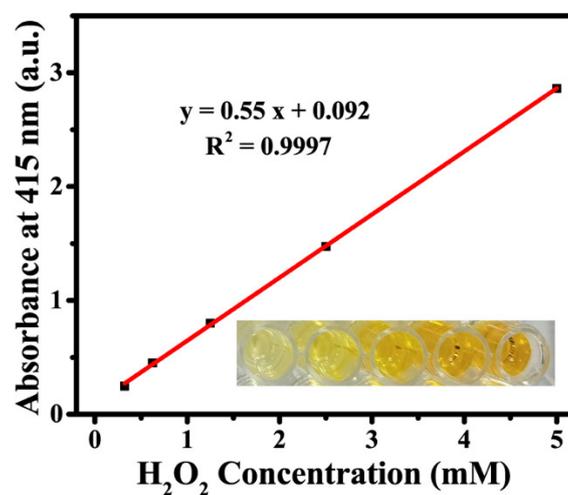


Figure S5. Standard curve of H<sub>2</sub>O<sub>2</sub> detected by titanous sulfate reagent.

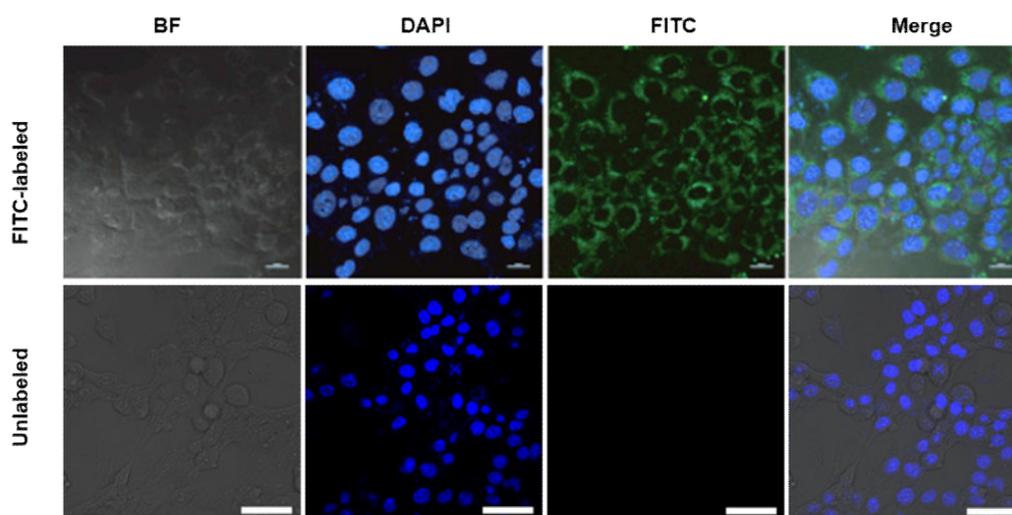


Figure S6. Confocal laser scanning microscopy (CLSM) images of FITC-labeled and unlabeled DMON@GOx/3-MA in the 4T1 cells (scale bar = 50  $\mu$ m).

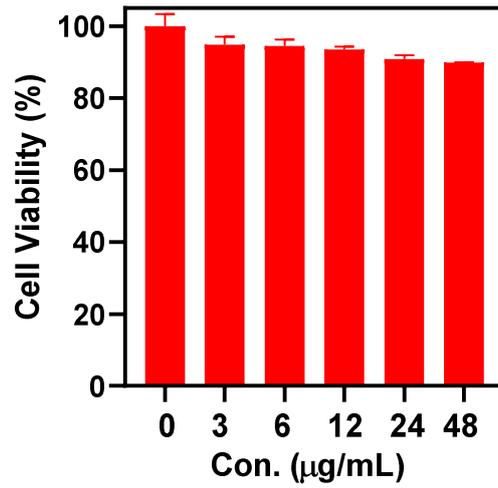


Figure S7. Cell viability of 4T1 cells treated with different concentrations of 3-MA for 24 h

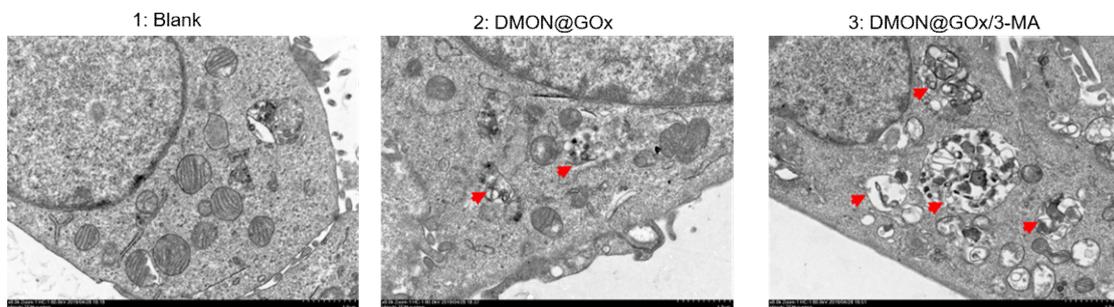


Figure S8. Bio-TEM images of 4T1 cells treated with DMON@GOx and DMON@GOx/3-MA for 24 h.

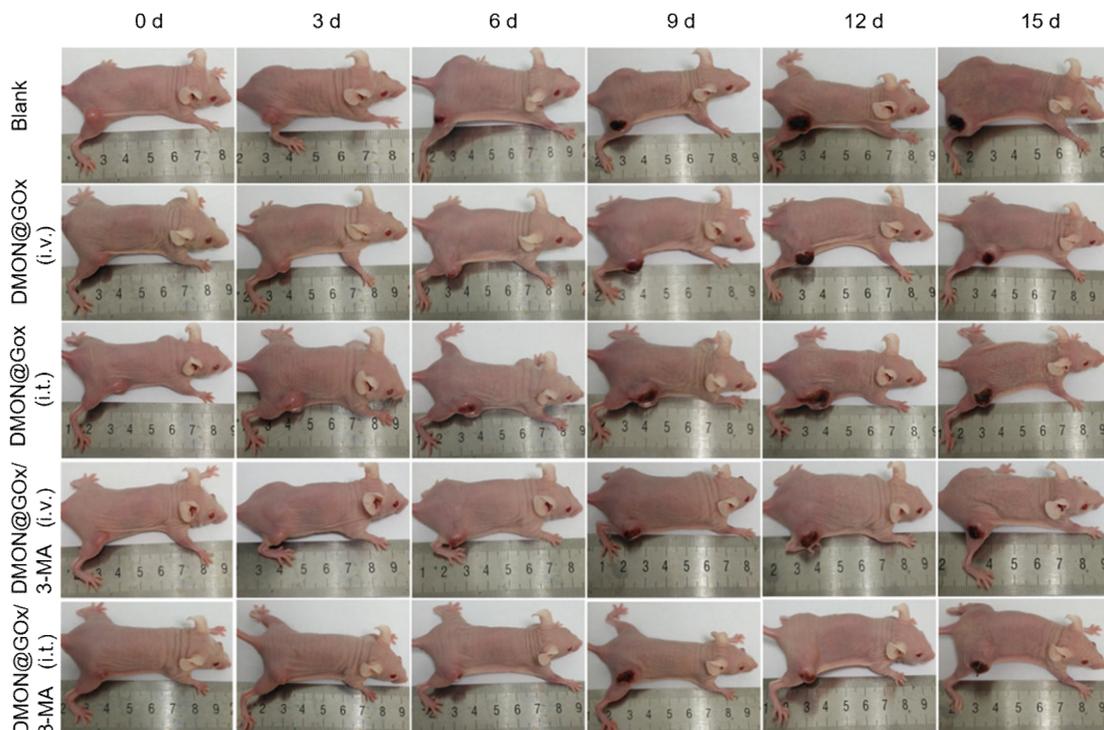
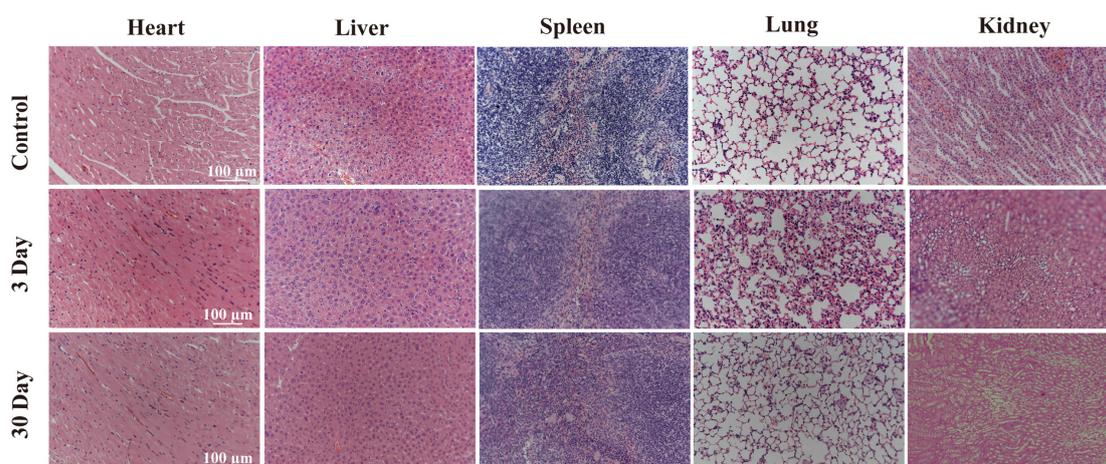
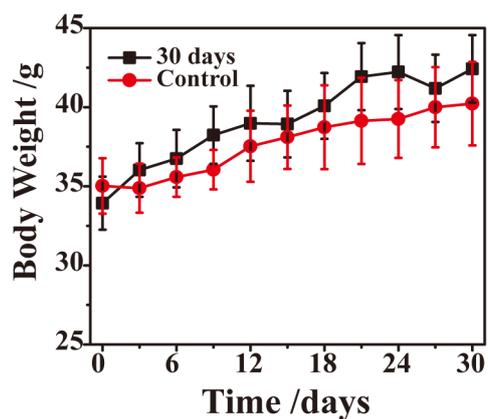


Figure S9. Digital photos of 4T1 tumor-bearing mice after different treatments.



**Figure S10.** Pathological H&E-stained images of tissue sections from heart, liver, spleen, lung and kidney of the mice treated with DMON@GOx/3-MA. The tissue sections were harvested in 3 and 30 days after the intravenous injection of a 50 mg/kg dosage, showing no significant change of physiological and morphological abnormalities (Scale bars, 100  $\mu\text{m}$ ).



**Figure S11.** Time-dependent body weight record of Kunming mice after i.v. injection of DMON@GOx/3-MA with a calculated dose of 75 mg/kg ( $n = 6$ , mean  $\pm$  s.d.).