Electronic Supplementary Information for

Intracellular Delivery of Liposome-encapsulated Finland Trityl Radical for EPR Oximetry

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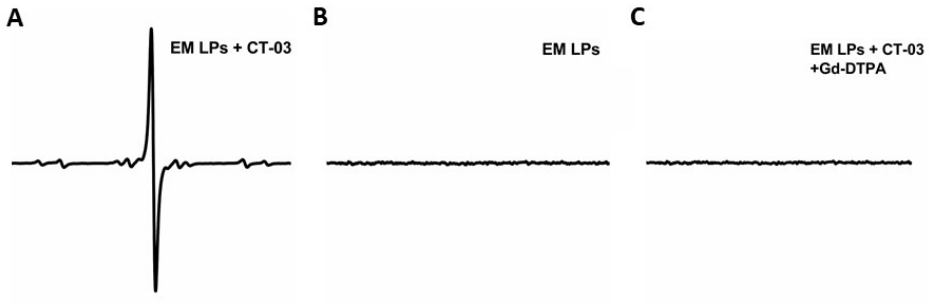

Fig. S1. EPR spectra of (A) free CT-03 (20 μM) mixed with empty liposomes (EM LPs); (B) EM LPs alone; (C) free CT-03 (20 μM), EM LPs and Gd-DTPA (20 mM) under aerobic conditions at room temperature.

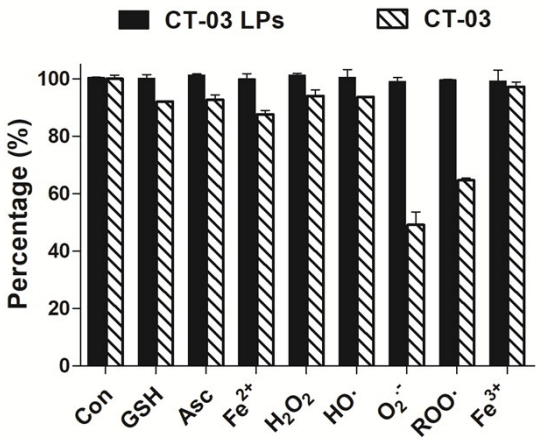

Fig. S2. Effect of various reactive species on free CT-03 (20 μM) or CT-03 LPs (final concentration of CT-03 at 20 μM) in PBS (20 mM, pH 7.4). GSH (1 mM), Asc (1 mM), and H_2O_2 (1 mM). Fe^{III}–NTA(0.1 mM) and H_2O_2 (1 mM) was used to generate hydroxyl radical ($HO^{\cdot}$). Superoxide anion radical ($O_2^{\cdot-}$) was generated from XO (20 $mUmL^{-1}$) and X (100 μM) in the presence of DTPA (100 μM). The alkylperoxyl radical was generated by thermolysis of 2,2'-azobis-2-methylpropanimidamidedihydrochloride (AAPH, 1 mM) at 37°C. The effect of various reactive species on CT-03 or CT-03 LPs was expressed as a percentage of EPR signal remaining after exposure to reactive species for 30 min. Each experiment was conducted three times, and the

error bars are small in some cases and within the symbols.

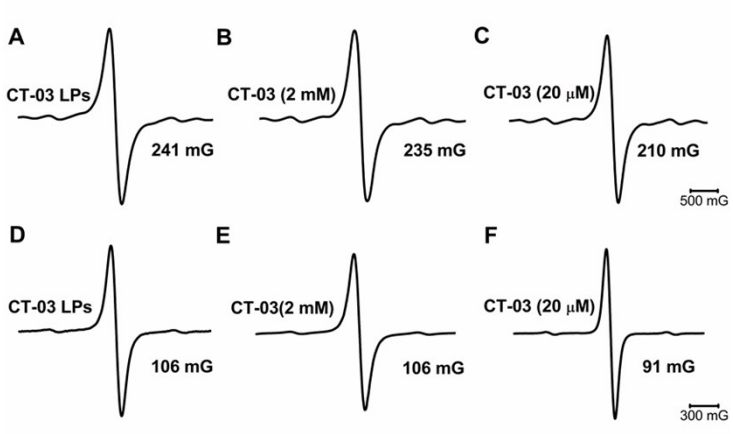

Fig.S3. EPR spectra of CT-03 LPs with the intraliposomal concentration of 2 mM for CT-03, free CT-03 at high (2 mM) or low concentrations (20 μM) under aerobic (top) or anaerobic (bottom) conditions. EPR measurements under aerobic conditions were performed in 50 μL capillary tubes, while the measurements under anaerobic conditions were carried out in a gas-permeable Teflon tube (i.d. = 0.8 mm). EPR parameters used under aerobic conditions: modulation frequency, 100 kHz; microwave power, 0.8mW; modulation amplitude, 0.15 G. EPR parameters used under anaerobic conditions: modulation frequency, 100 kHz; microwave power, 0.2mW; modulation amplitude, 0.03 G.)

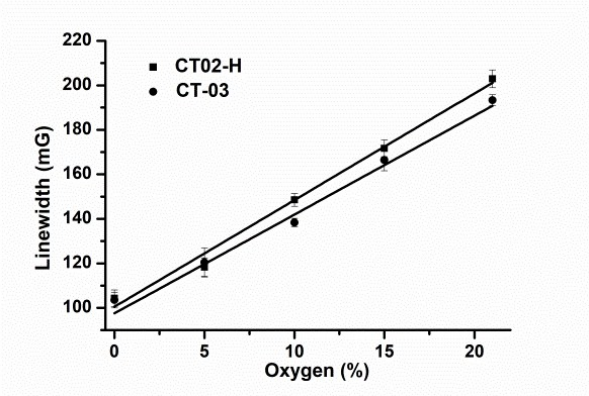

Fig.S4. Variations in the EPR line widths of CT02-H (extracellular, the low-field peak) and CT-03

(intracellular) with oxygen concentrations in the HUVECs suspensions. The data were linearly fitted using the following equations: y = 4.44x + 97.53 (CT-03); y = 4.79x + 100.52 (CT02-H), where x is oxygen concentration (%O_2) and y the linewidth (LW, mG).

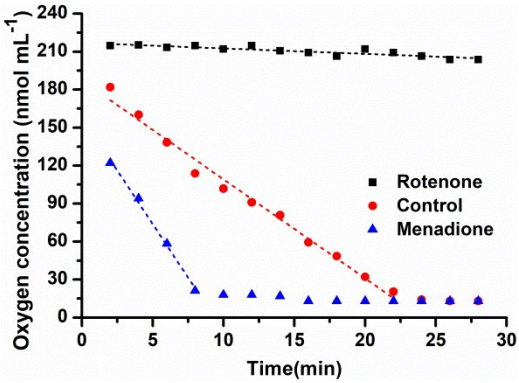

Fig.S5. Time-course of the variations of intracellular O_2 concentrations in HepG2 cells which were treated with rotenone (800 μM) or menadione (10 μM).