

SUPPORTING INFORMATION

Magnetic Oleosome as a Functional Lipophilic Drug Carrier for Cancer Therapy

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TABLE OF CONTENTS

SUPPLEMENTARY FIGURES AND TABLES	Page
Figure S1: Characterization of lipophilic magnetic nanoparticle	S-3
Figure S2: Energy dispersive X-ray spectroscopy (EDS) data of ZnFe_2O_4 and Fe_3O_4	S-4
Figure S3: Confirmation of antibody binding on functional oleosome	S-5
Figure S4: Confocal images of oleosome to normal breast cell and neuroblastoma	S-6
Figure S5: Cytotoxic effects of carmustine on different types of cells	S-7

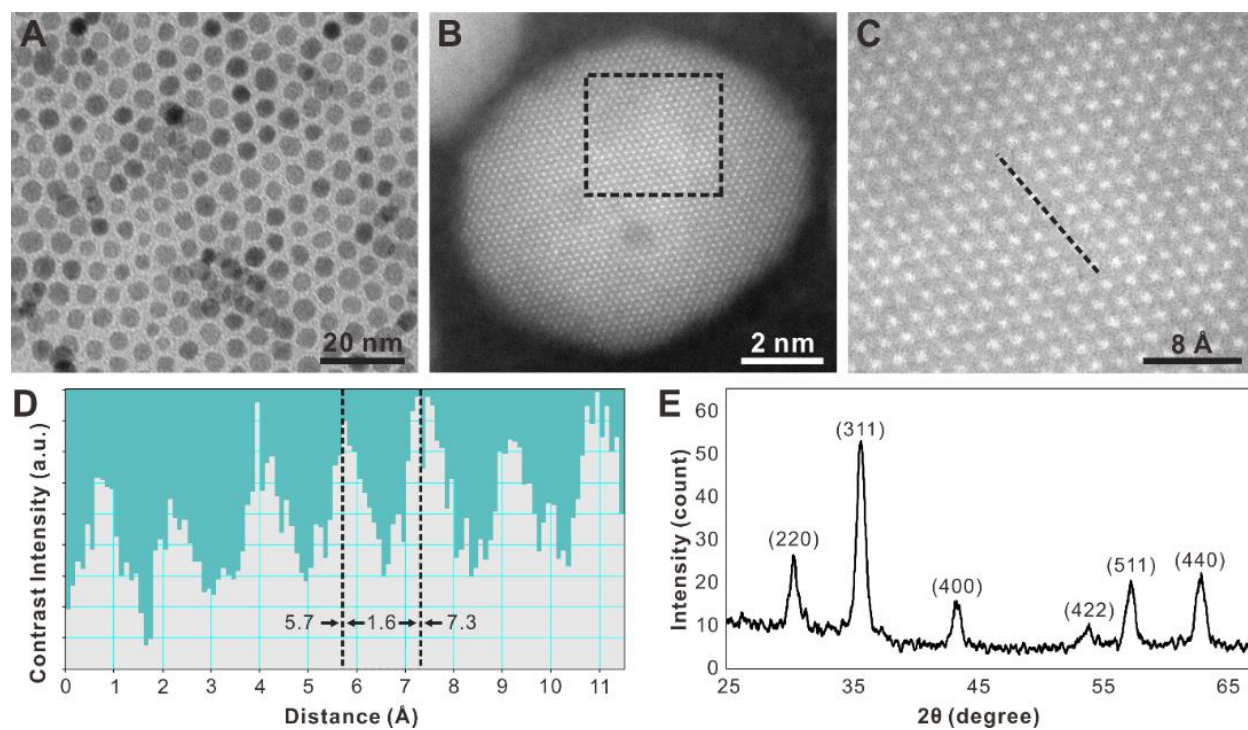


FIGURE S1: Characterization of the lipophilic magnetic nanoparticle. (A-C) STEM images of the magnetic ZnFe_2O_4 nanoparticles. (B) The lattice structure of single nanoparticle. (C) a zoomed-in image of the dash-lined box in (B). (D) The distance between lattice projections showing a d-spacing of ~ 0.16 nm (1.6 \AA), corresponding to the (511) lattice spacing of the face-centered cubic spinel. (E) Magnetic nanoparticle x-ray diffraction patterns.

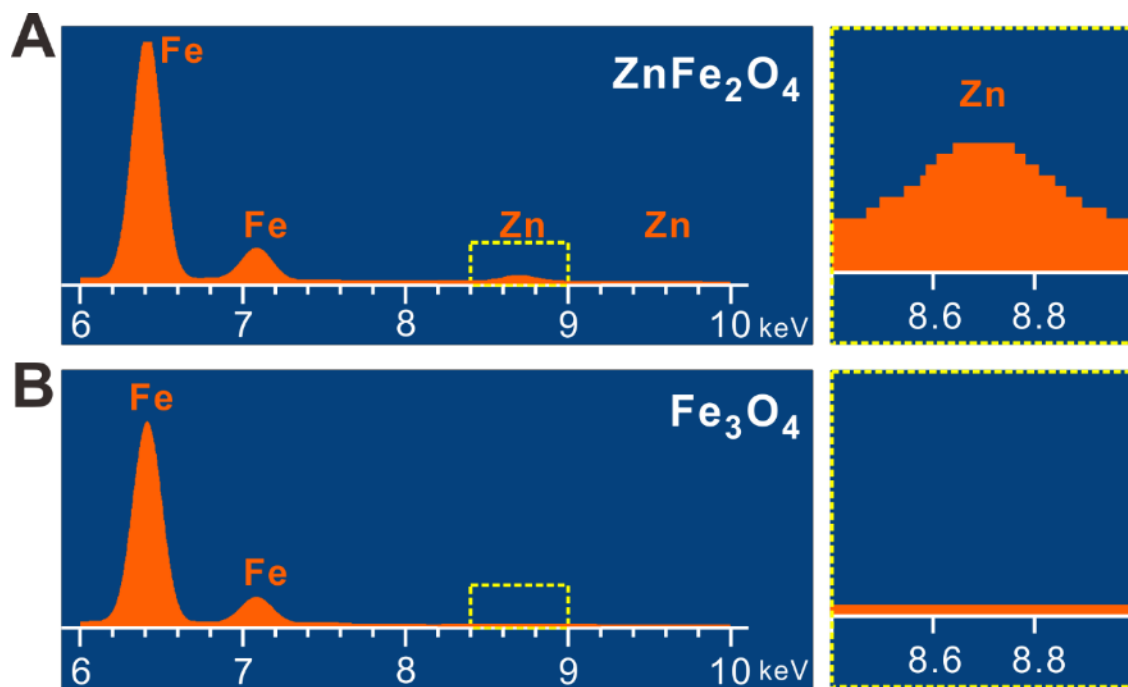


FIGURE S2: Energy dispersive X-ray spectroscopy (EDS) data of ZnFe_2O_4 (A) and Fe_3O_4 (B). The right panel is a zoomed-in image of the dash-lined box in (A) and (B).

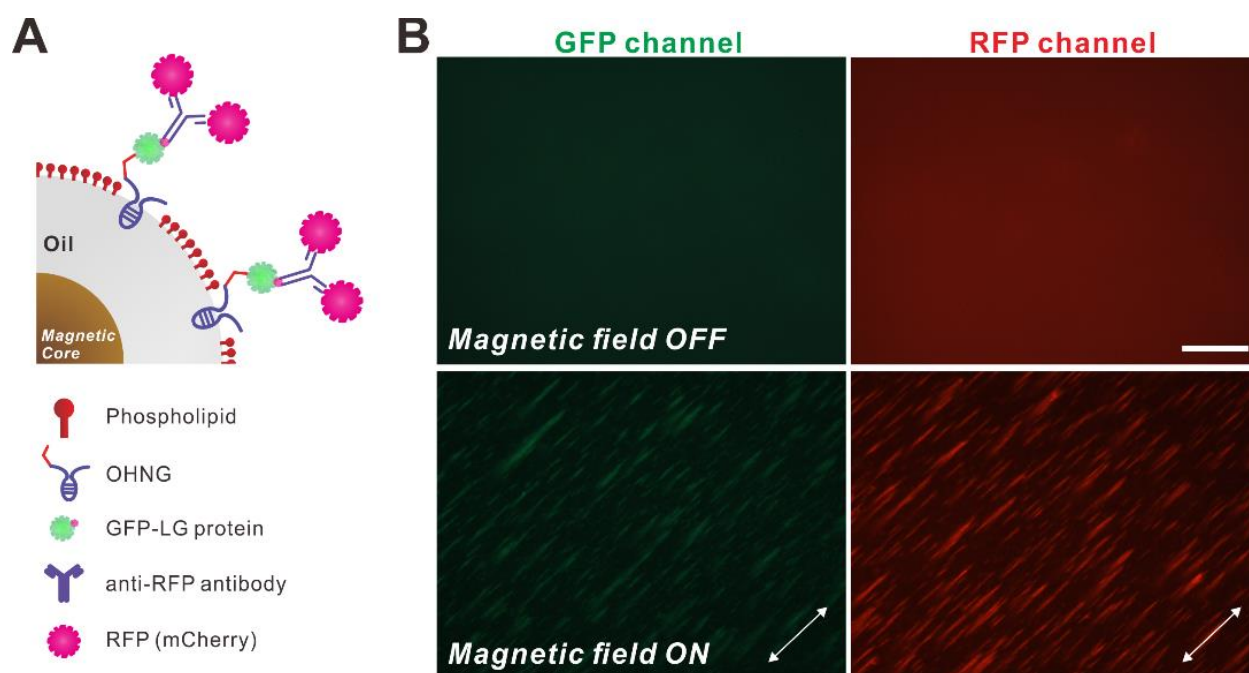


FIGURE S3: Confirmation of antibody binding on functional oleosome. (A) Schematic illustration of red fluorescence protein (RFP, mCherry) decorated oleosome with the anti-RFP antibody. (B) After the sequential treatment of anti-RFP antibody and RFP on the oleosome, the fluorescence signal of RFP was showed the magnetic response and it was well-aligned with GFP signal. The double-headed arrow indicates the direction of the applied magnetic field. Scale bar: 100 μm .

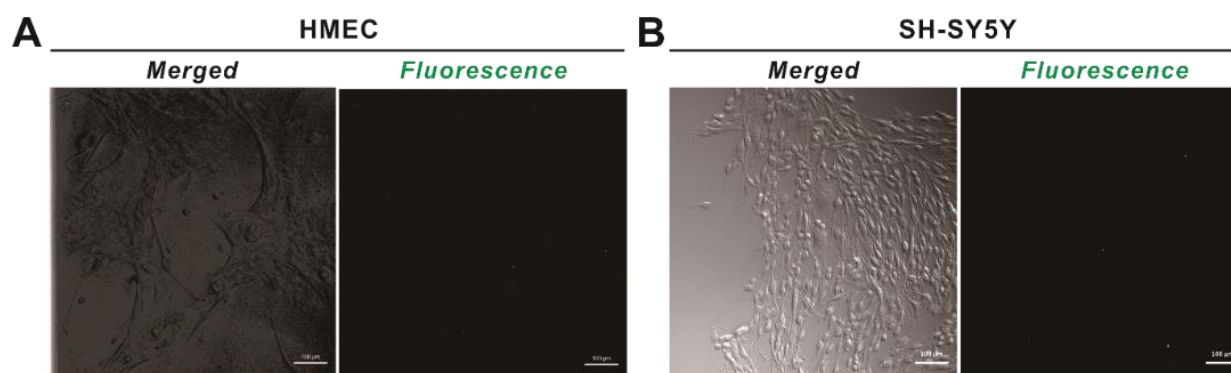


FIGURE S4: Confocal images of oleosome to normal breast cell and neuroblastoma. (A) oleosome-EGFR treated normal cells (HMECs), (B) oleosome-EGFR treated neuroblastoma (SH-SY5Y). Fluorescence images were obtained with FITC filter (495 nm excitation, 520 nm emission). Scale bar is 100 μm .

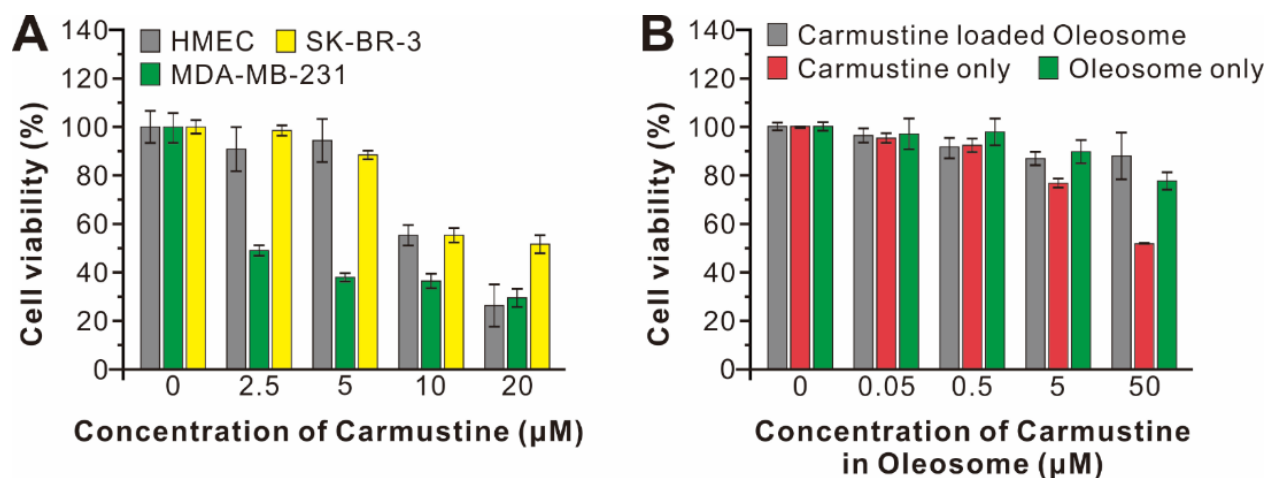


FIGURE S5: Cytotoxic effects of carmustine on different types of cells. (A) The result of cytotoxic effects of carmustine on breast cancer cell lines (MDA-MB-231 and SK-BR-3) and normal cell line (HMEC). 2 mM Carmustine in DMSO was treated with the growth media and the final ratio between DMSO and growth media was matched for every condition by adding an extra volume of DMSO. (B) HUVEC was not showed a cytotoxic response to carmustine loaded oleosome-EGFR treatment while 50 % of cell death with direct treatment of 50 μM carmustine.