Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

SUPPORTING INFORMATION

Photothermal Effect of Silica-Carbon Hollow Sphere-Concanavalin A for Liver Cancer

Ying-Chi Chen,[a] Wen-Tai Chiu,[*ab] Jung-Chih Chen,[c] Chia-Sheng Chang,[d] Lily Hui-Ching Wang,[e] Hong-Ping Lin[*df] and Hsien-Chang Chang[*abf]

[a] *Department of Biomedical Engineering, National Cheng Kung University, Tainan 70101, Taiwan*

[b] *Medical Device Innovation Center, National Cheng Kung University, Tainan 70101, Taiwan*

[c] *Institute of Biomedical Engineering, National Chiao Tung University, Hsinchu 30010, Taiwan*

[d] *Department of Chemistry, National Cheng Kung University, Tainan 70101, Taiwan*

[e] *Institute of Molecular and Cellular Biology, National Tsing Hua University, Hsinchu 30013, Taiwan*

[f] *Center for Micro/Nano Technology Research, National Cheng Kung University, Tainan 70101, Taiwan*

E-mail: hcchang@mail.ncku.edu.tw

Department of Biomedical Engineering, National Cheng Kung University

Address: No.1, Ta-Hsueh Road, Tainan 70101, Taiwan (R.O.C.)

Tel.: +886-6-2757575 ext 63426

FAX: +886-6-2343270

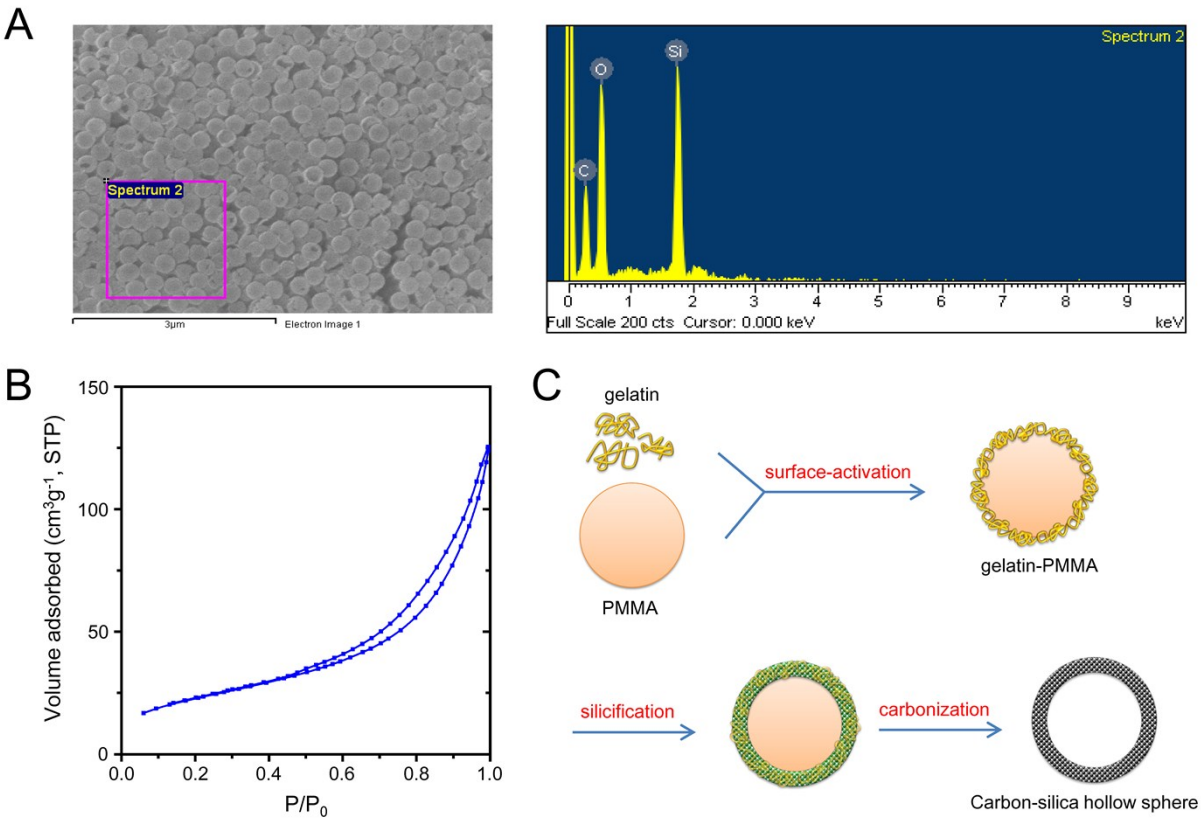

Fig. S1 (A) SEM-EDS image and spectrum of SCHSs. EDS elemental analysis was performed at several different regions of SCHSs in order to minimize the deviation value of the analyzed surface. The EDS results show that the sample is composed of silicon (Si), oxygen (O), and carbon (C). (B) The N_2 adsorption-desorption isotherm of the SCHSs. (C) The proposed formation mechanism of the mesoporous SCHSs.

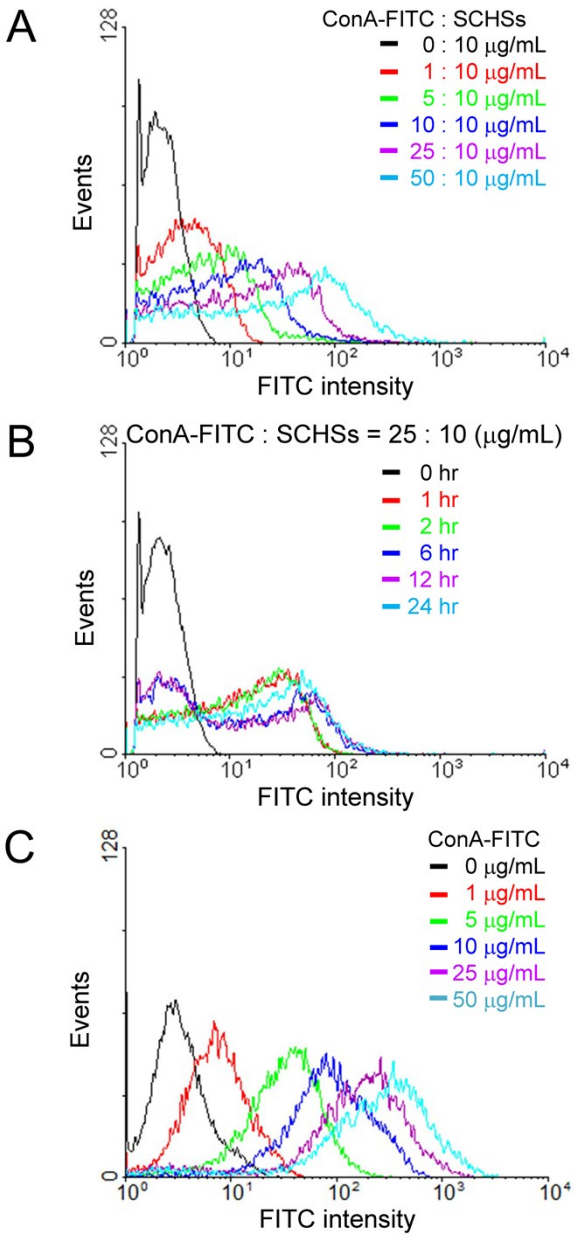

Fig. S2 Optimizing the proportion of the components and reaction time of ConA-FITC-SCHSs. Flow cytometric analysis was used to detect the FITC fluorescent signals. The horizontal and vertical axes represent the FITC intensity and the number of events, respectively. (A) The different concentrations (0-50 μg/mL) of ConA-FITC were mixed with 10 μg/mL SCHSs for 1 hr in order to form the ConA-FITC-SCHSs complex. (B) Mixture of 25 μg/mL ConA-FITC and 10 μg/mL SCHSs for 0-24 hrs in order to form the ConA-FITC-SCHSs complex. (C) The different concentrations (0-50 μg/mL) of ConA-FITC were incubated with ML-1 cell for 1 hr.

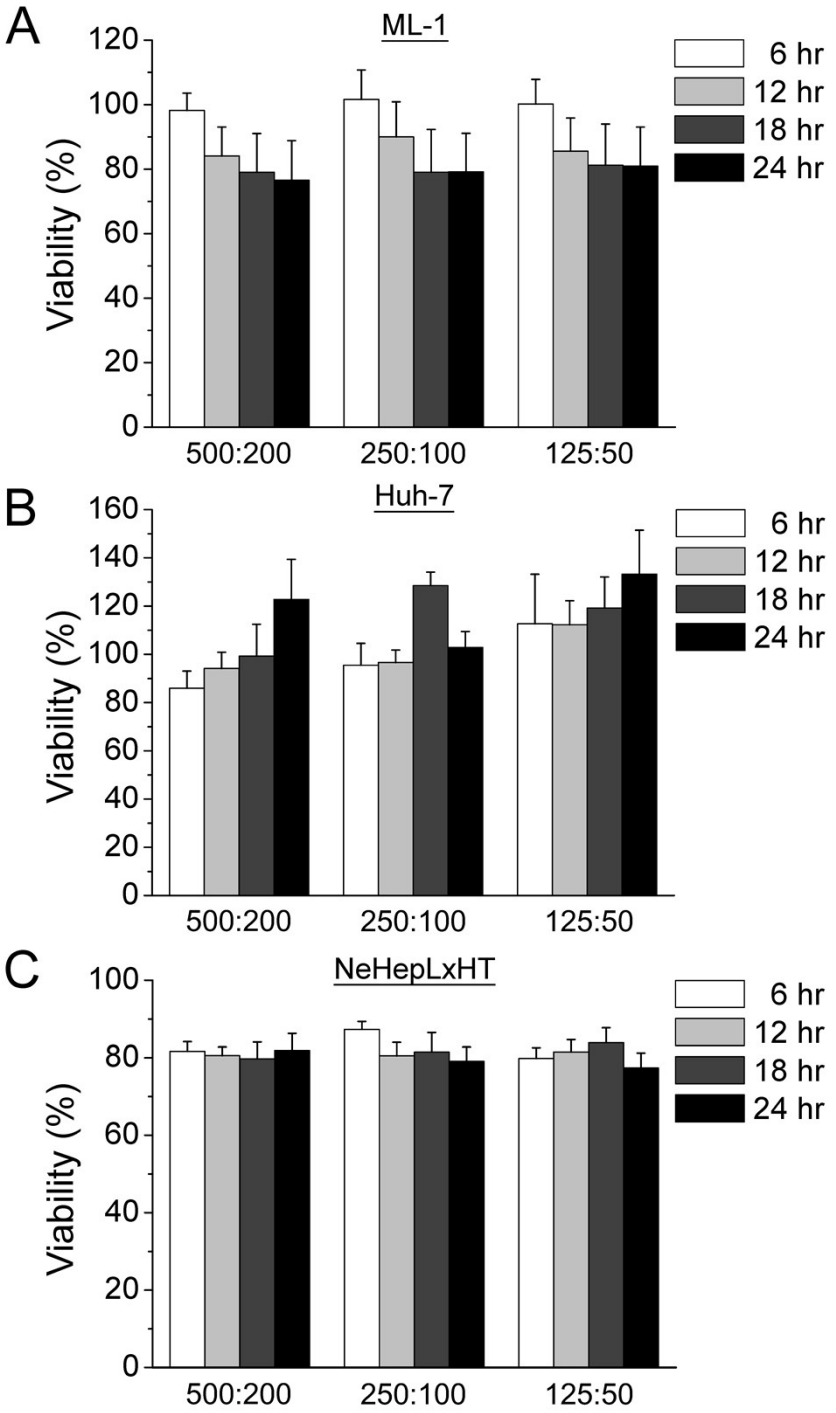

Fig. S3 Effect of ConA-SCHSs on cell viability. The viabilities of (A) ML-1 cells, (B) Huh-7 cells and (C) NeHepLxHT cells were examined by incubating the cells with different concentrations of ConA-SCHSs (500:200, 250:100 and 125:50 μg/mL) for various reaction times (6-24 hrs). Propidium iodide (PI), a DNA fluorescence dye, was used as a marker to evaluate the intracellular DNA contents. PI stained cells were analyzed by flow cytometry.

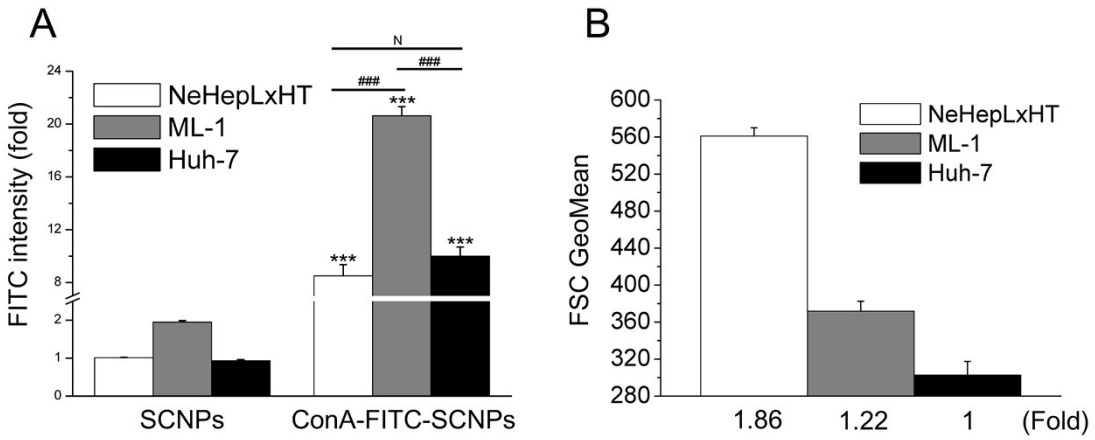

Fig. S4 The binding capacity to ConA-FITC-SCHSs and cell volumes of liver cells. (A) Trypsinized hepatocyte (NeHepLxHT) and hepatoma (ML-1, Huh-7) floating cells were incubated with SCHSs only or ConA-FITC-SCHSs for 1 hr. The FITC intensity in cells indicates the binding capacity by flow cytometry. Each column represents mean±SEM from at least three independent experiments. *P* values were calculated by the Student's *t*-test: *** or ###, $p<0.001$. (B) The forward scatter values (geometric mean values) were used to estimate the relative volume of hepatocyte and hepatoma cells by flow cytometry. The relative volume in folds was normalized to Huh-7 cells.