Supporting Information

Mussel Inspired Coatings on Ag Nanoparticles Conjugated Carbon Nanotubes: Bactericidal Activity and Mammal Cell Toxicity

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HUVEC culture

Cell culture. Human umbilical vein endothelial cells (HUVECs) were grown in R1640 medium supplemented with 10 % fetal bovine serum (FBS) (Hyclone, USA), 2 mM L-glutamine and 1 vol. % antibiotics mixture (10,000 U penicillin and 10 mg streptomycin). Cultures were maintained in a humidified atmosphere of 5 % CO_2 at 37 °C (Queue Incubator, Paris, France). Confluent cells were detached from the culture flask with sterilized PBS and 0.05 % trypsin/EDTA solution. The culture medium was changed every day.

MTT assay. After cell culture for 2, 4 and 6 days, the viability of the HUVECs was determined by an MTT assay. The HUVECs were seeded onto the plates at a density of approx. 2.5×10^4 cells/cm^2. The cells cultured in the wells without samples served as the control in this study. After determined time intervals, 45 μL of the MTT solution (1 mg/mL in the test medium) was added to each well and incubated for 4 h at 37 °C. Mitochondrial dehydrogenases of viable cells selectively cleave the tetrazolium ring, yielding blue/purple formazan crystals. 400 μL of ethanol was added to dissolve the formazan crystals. Therefore, the quantity of the formazan crystals dissolved in the ethanol reflects the level of cell metabolism. The dissolved solution was shaken homogeneously for about 15 minutes. The solution of each sample was aspirated into a microtiter plate and the optical density of the formazan solution was read on a Microplate reader (Model 550, Bio-Rad) at 492 nm. All the experiments were repeated three times, and the results were expressed as means ± SD.

Live/dead cell staining. After 2 days of culture on different substrates, the live/dead staining was performed. To stain with FDA/PI, 0.1 mL of FDA working solution and 0.03 mL of PI were added directly to the culture medium. The cells were stained for 3 min at room temperature; then washed with PBS. The cells were then immediately visualized by fluorescence microscopy (DMIRE2, Leica). Thereby, FDA fluorescence was monitored by excitation with an argon-laser (excitation wavelength 492 nm, emission wavelength 520 nm); whereas PI positively charged samples were excited

with a helium-neon-laser (excitation wavelength 537 nm, emission wavelength 566 nm). The average numbers of the endothelial cells were estimated from at least 4 fluorescence images.

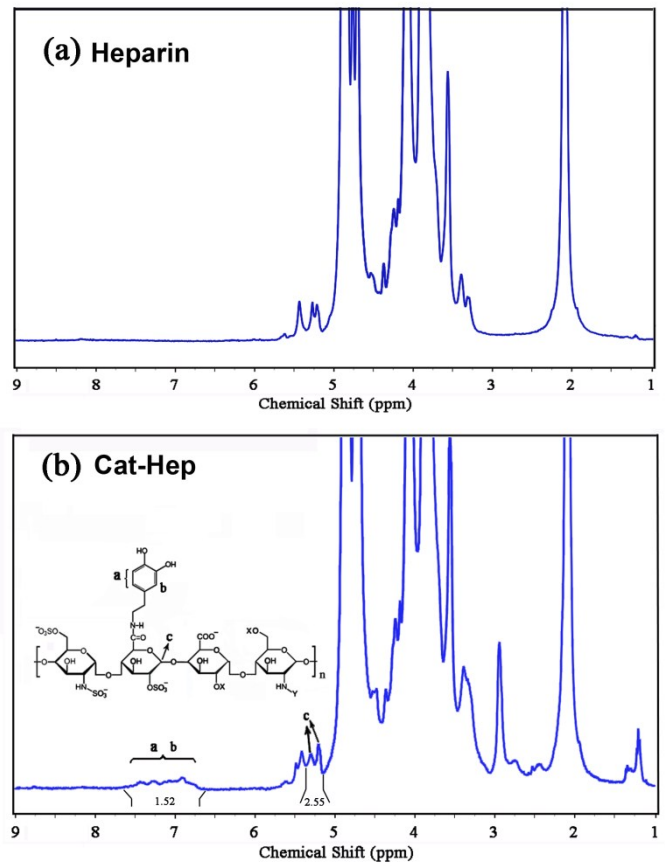

Figure S1. ^{1}H NMR spectra for heparin and Cat-Hep in D_2O.

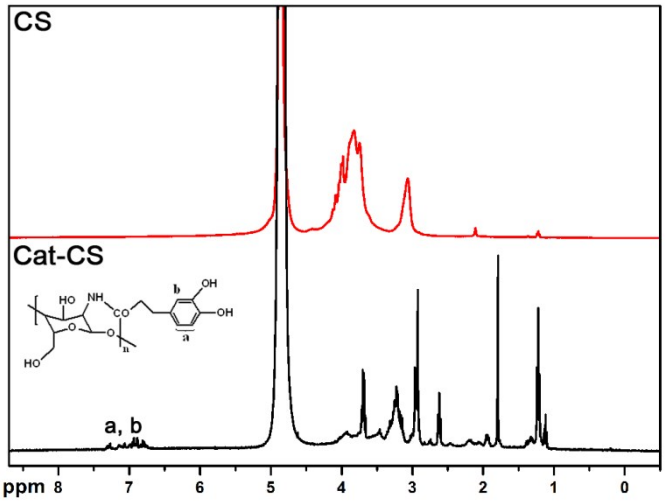

Figure S2. ^{1}H NMR spectra for CS and Cat-CS. The protons around 7 ppm were assigned to be aromatic protons, indicating the success of dopamine grafting.

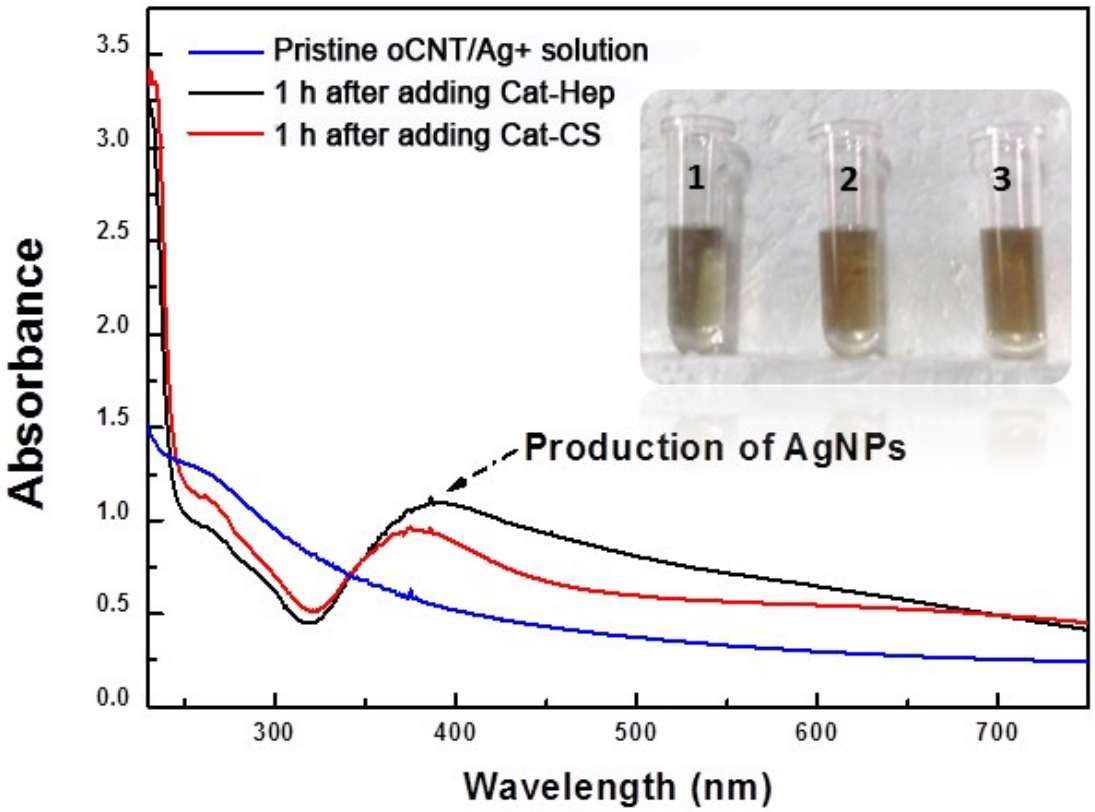

Figure S3. UV-vis spectra for the samples. The insert is the visual image for pristine oCNT/Ag+ solution (1) and the solutions shaken for 1 h with Cat-Hep (2), and Cat-CS (3), respectively.