

## *Supporting Information*

# Extremely High Inhibition Activity of Photoluminescent Carbon Nanodots toward Cancer Cells

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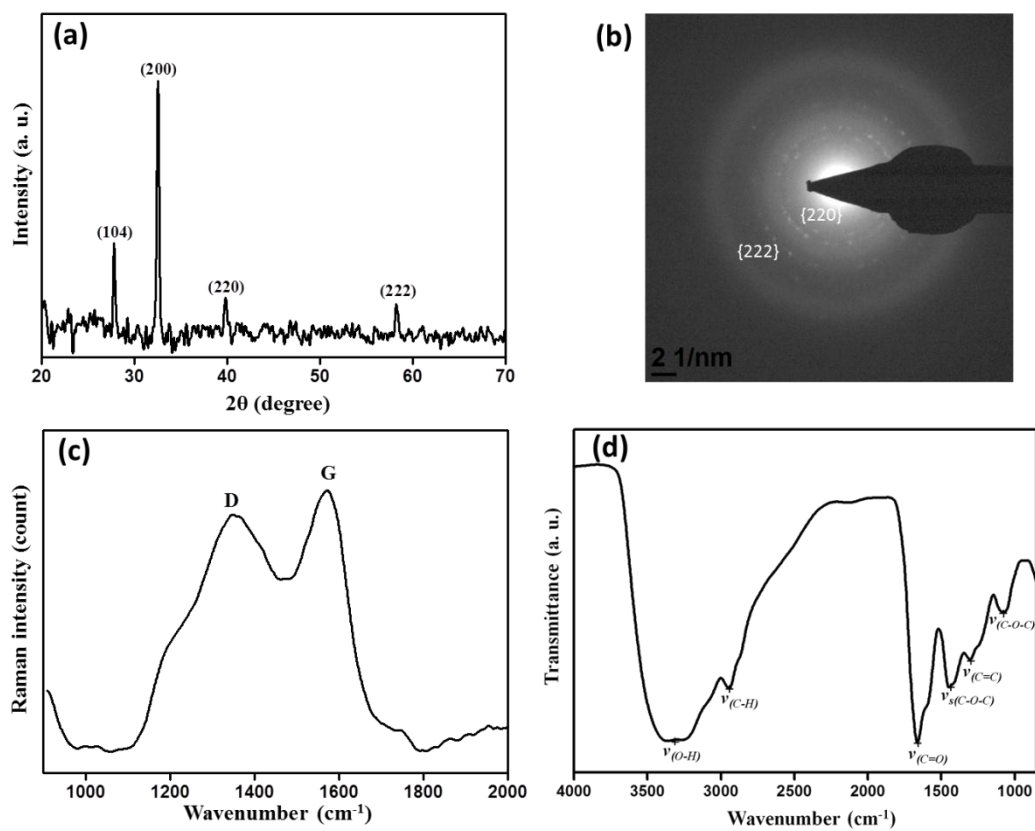
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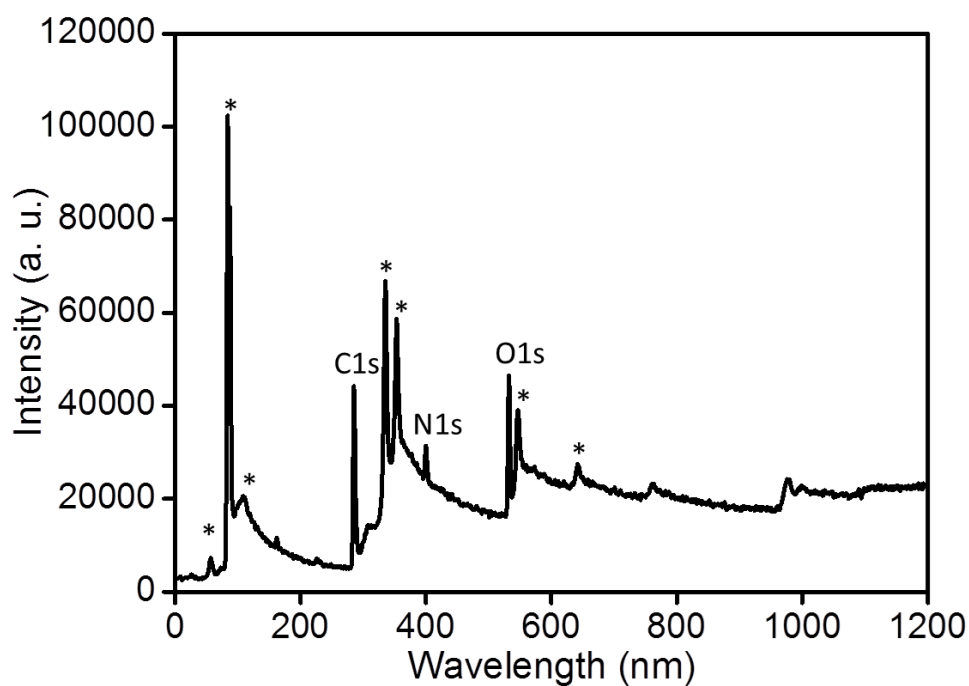
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Taiwan University, 1, Section 4, Roosevelt Road, Taipei 106, Taiwan. Tel. and fax:

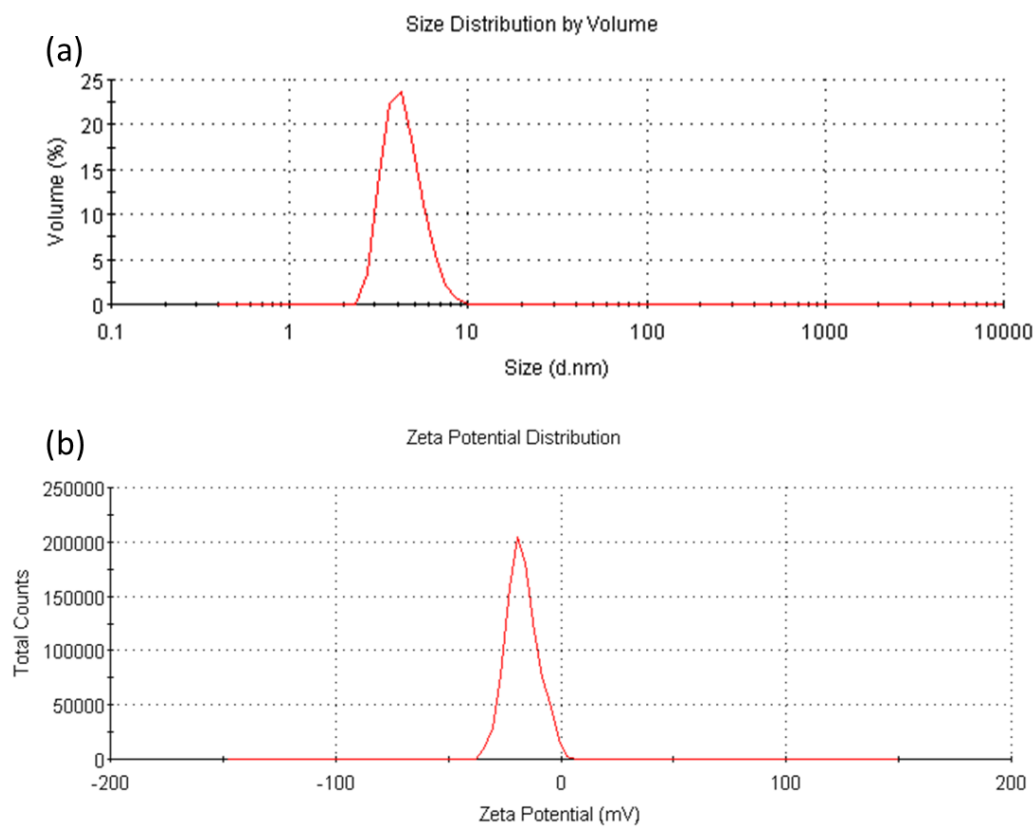
011-886-2-33661171; e-mail: [changht@ntu.edu.tw](mailto:changht@ntu.edu.tw)



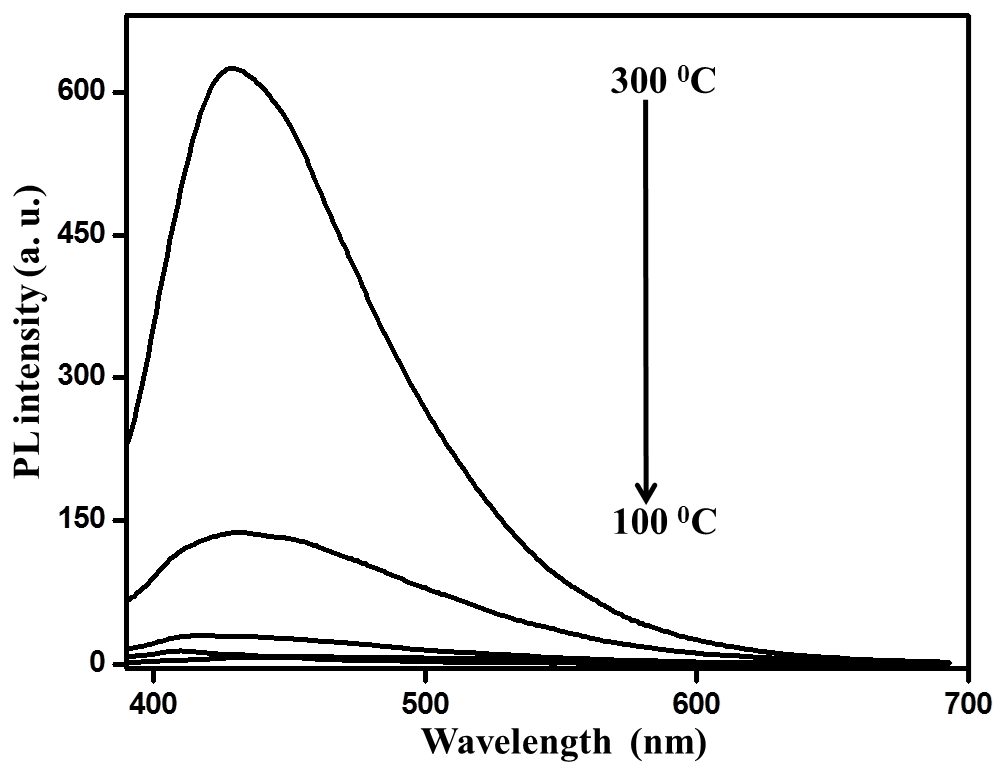
**Figure S1.** (a) XRD pattern, (b) SAED pattern, (c) Raman spectrum, and (d) FT-IR spectrum of C-dots.



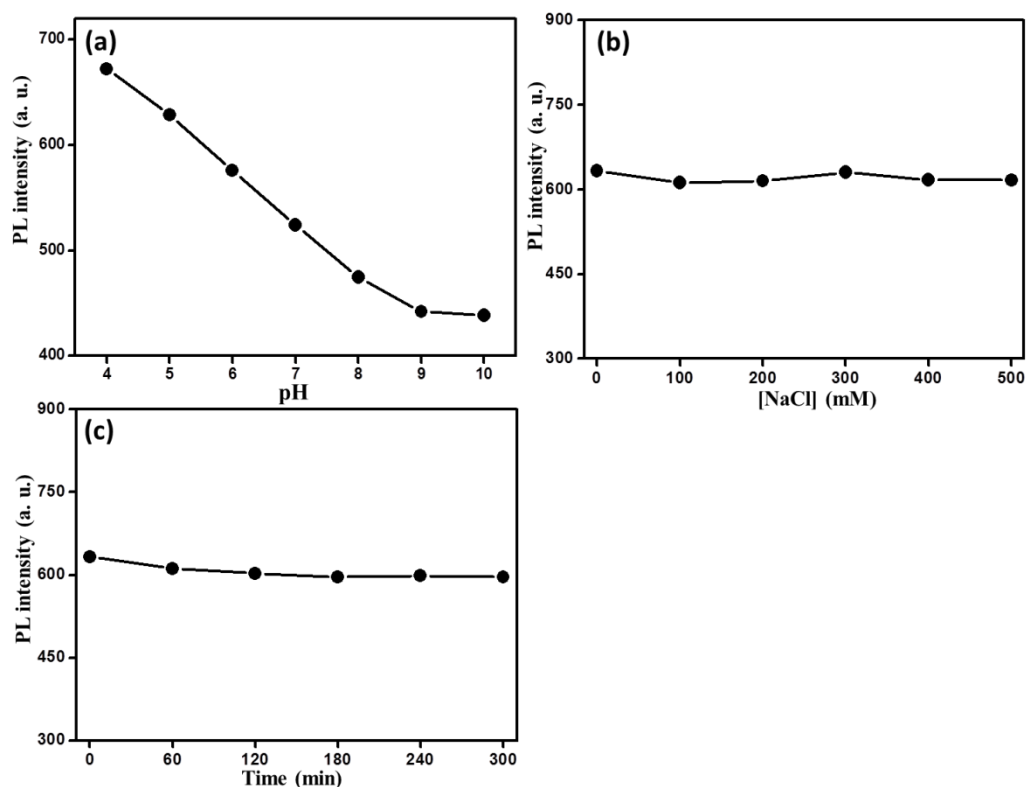
**Figure S2.** XPS spectrum of C-dots. Binding energies were corrected by using the  $4f_{7/2}$  peak at 84.0 eV as a standard. Peaks identified by asterisks are signals from Au.



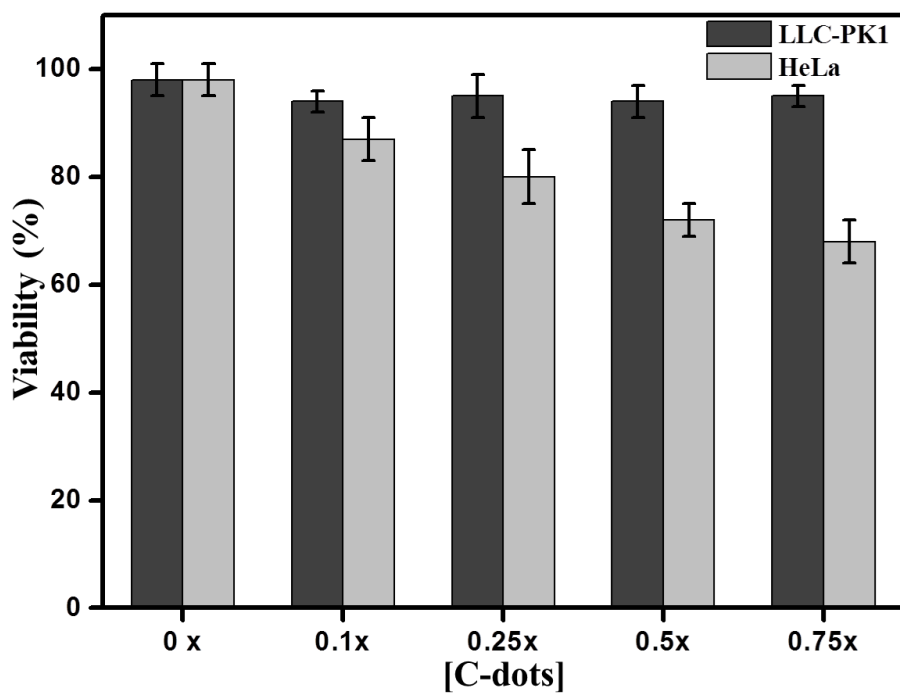
**Figure S3.** (a) DLS spectrum and (b) zeta-potential of C-dots.



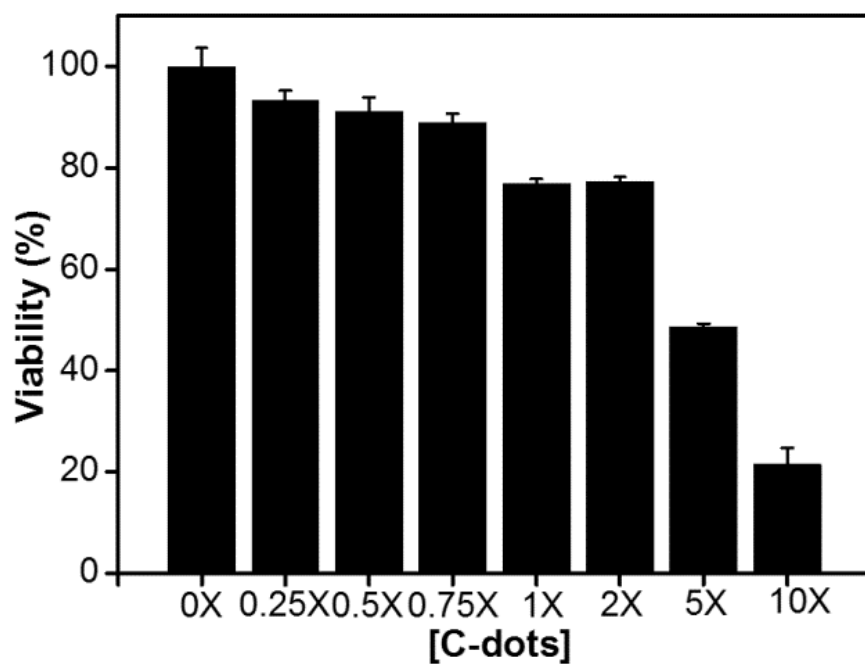
**Figure S4.** Thermal effect on the preparation of C-dots. Excitation wavelength was set at 345 nm. The calcination temperatures were 100, 150, 200, 250, and 300 °C.



**Figure S5.** Effects of (a) pH, (b) NaCl concentration, and (c) irradiation time on the photoluminescence intensity of C-dots. Excitation and emission wavelengths were set at 345 and 420 nm, respectively. (a) C-dots were prepared in phosphate solutions (5 mM). The pH values decrease in the step of one unit from 4.0 to 10.0. (b) C-dots were prepared in phosphate buffers (5 mM, pH 7.4) containing various concentrations of NaCl. (c) C-dots were prepared in phosphate buffer (5 mM, pH 7.4).

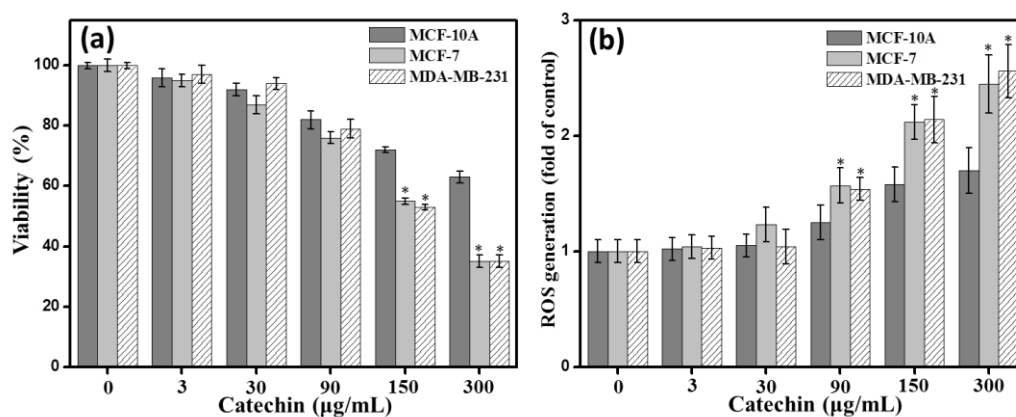


**Figure S6.** Cytotoxicity of C-dots on LLC-PK1 and HeLa cells after 24 h. The values represent percentages of cell viability (mean  $\pm$  SD, n = 3). 1 $\times$  = 0.36 mg/mL.

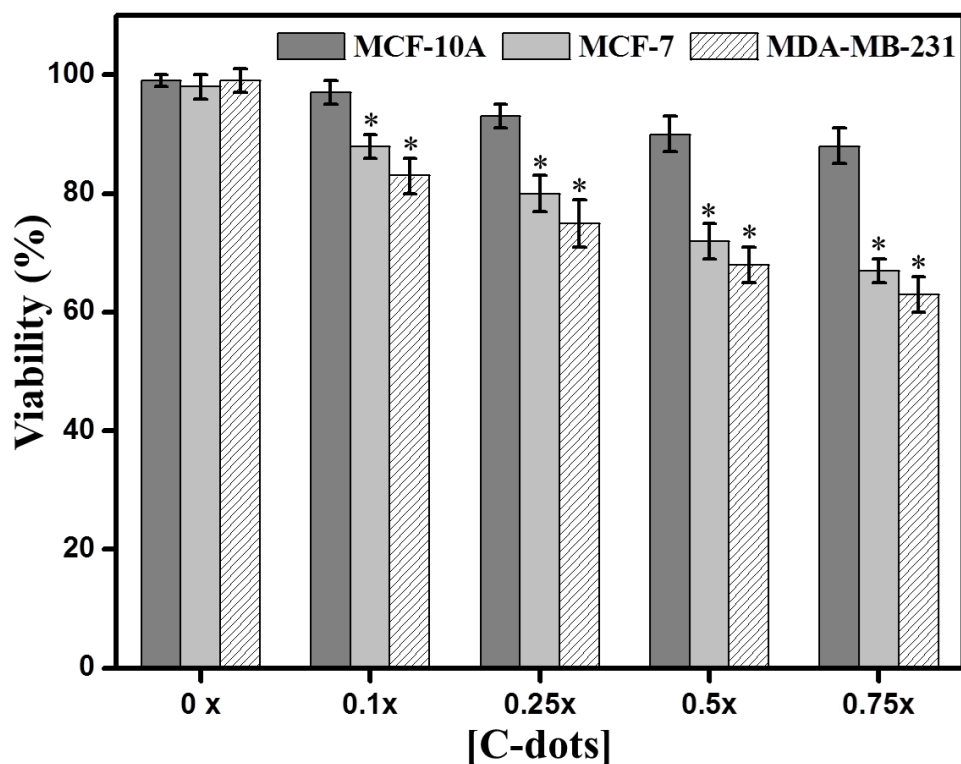


**Figure S7.** C-dots induced cytotoxicity of MCF-10A cells. Cells were treated with C-dots at the concentrations of 0, 0.25 $\times$ , 0.5 $\times$ , 0.75 $\times$ , 1 $\times$ , 2 $\times$ , 5 $\times$  or 10 $\times$  for 24 h. 1 $\times$  = 0.36 mg/mL.

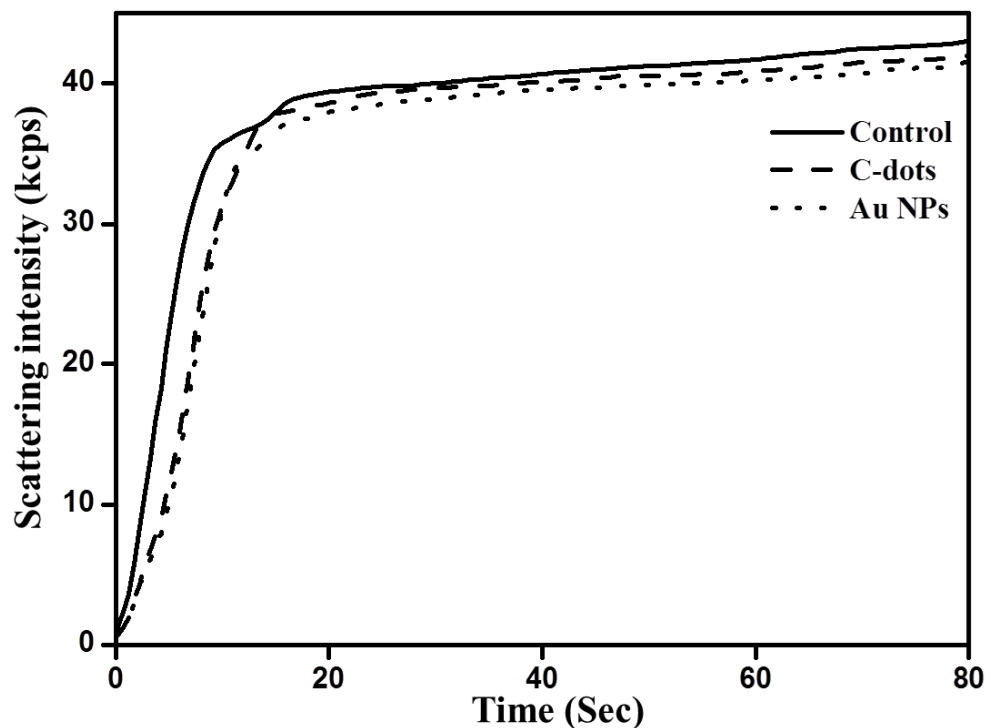




**Figure S8** Catechin-induced (a) cytotoxicity and (b) oxidative stress of MCF-10A, MCF-7 and MDA-MB-231 cells. Cells were treated with C-dots at the concentrations of 0, 3, 30, 90, 150, and 300 µg/mL for 24 h. The percentages of cell viability and ROS generation are shown as a relative value to control (MCF-10A cells). The values represent mean  $\pm$  SD ( $n = 3$ ,  $*p < 0.01$ ).



**Figure S9.** C-dots induced cytotoxicity of MCF-10A, MCF-7 and MDA-MB-231 cells.  $1\times = 0.36$  mg/mL (C-dots prepared from catechin). The percentages of cell viability are shown as a relative value to control (MCF-10A cells). The values represent mean  $\pm$  SD ( $n = 3$ ,  $*p < 0.01$ ).



**Figure S10.** Real-time monitoring of the light scattered during the coagulation of mixtures of human plasma and C-dots or Au NPs. After coagulation was initiated by adding thromboplastin reagent to each plasma sample, the light scattered from each sample was monitored at 650 nm. The scattered light is plotted in units of kilocounts per second (kcps).