Electronic Supplementary Material (ESI) for RSC Advances.
This journal is © The Royal Society of Chemistry 2016

Supplementary Information

Fabrication of an EGF modified nanodiamonds-based anti-cancer drug targeted delivery system and drug carrier uptake visualization by 3D Raman microscopy

Xin Chen, [abc] Dandan Li, [ac] Hong Wang,[b] Yuan-yuan Jiao, [d] Hao Wang, [e] Yuan Yu, [a*] and Jinfang Zhi [a*]

[a.] *Key Laboratory of Photochemical Conversion and Optoelectronic Materials, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, PR China.*

[b.] *Department of Pharmaceutical Analysis, School of Pharmaceutical Sciences, Peking University, Beijing 100191, P. R. China.*

[c.] *University of Chinese Academy of Sciences, Beijing 100190, PR China.*

[d.] *Department of Pharmacy, Peking University Cancer Hospital & Institute, Beijing, 100142, P. R. China.*

[e.] *Department of Radiation Oncology, Peking University Third Hospital, Beijing 100191, P. R. China.*

**Co-correspondence authors: Yuan Yu and Jinfang Zhi, Email: yyu@mail.ipc.ac.cn, Zhi-mail@mail.ipc.ac.cn*

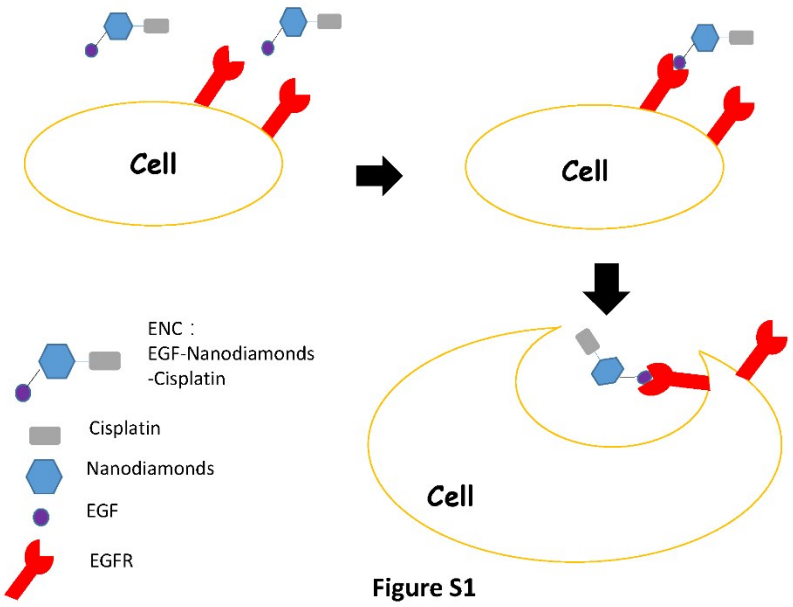

Figure S1 Schematic showing ENC targeting the cell surface receptor EGFR，and then, they were devoured by the HepG2 cells

Table S1 The comparision of nanodiamonds, NC, EGF-NDs, and ENC on particle size and zeta potential.

	nanodiamonds	NC	EGF-NDs	ENC
particle size (nm)	186.5	207.5	229.7	253.1
zeta potential (mV)	-22.7±4.0	-20.7±2.5	-17.4±4.0	-15.9±2.3

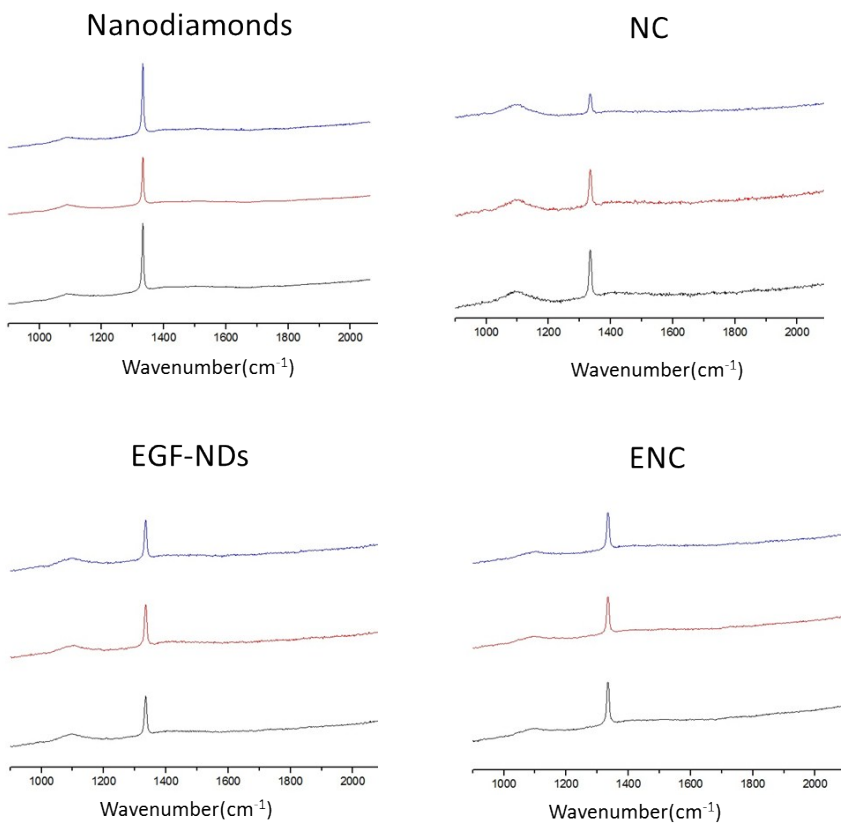

Figure S2 Raman spectra of nanodiamonds, NC, EGF-NDs, and ENC

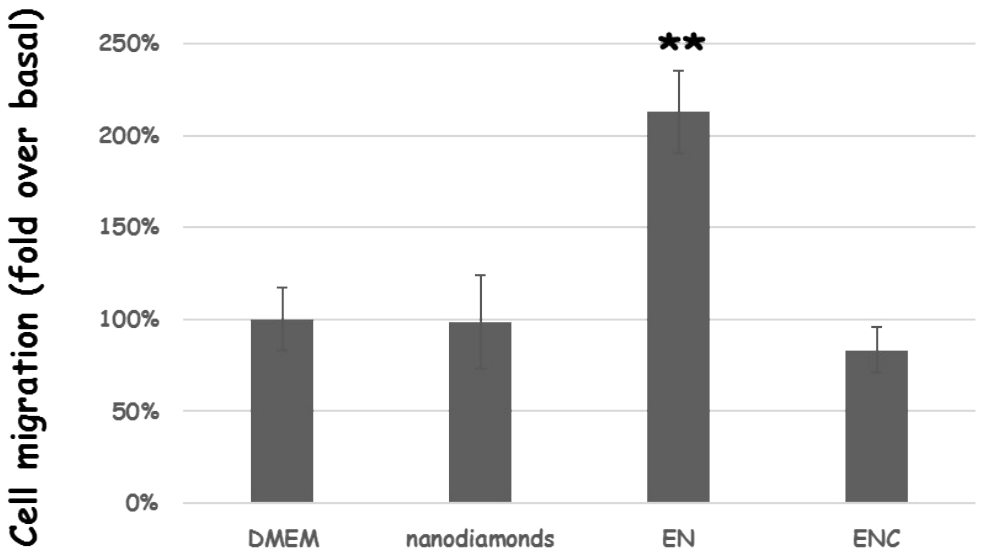

Figure S3 Quantification showing the migration rates in HepG2 cells following DMEM, nanodiamonds, EN (EGF-nanodiamonds) and ENC treatments, there is no significant difference among the DMEM, nanodiamonds and ENC groups for migration rates. EN (EGF-nanodiamonds) could significantly induce migration in

HepG2 cells.