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

Supporting Information of

Size-dependent Nanographene Oxide as a platform for Highly Effective Carboplatin Release

Sami Makharza[a], Giuseppe Cirillo[a,b], Alicja Bachmatiuk[c,d,e], Orazio Vittorio[g,h], Rafael Gregorio Mendes[a], Steffen Oswald[a], Silke Hampel[a], Mark H. Rümmeli[c,d*]

[a] *IFW Dresden, D-01171 Dresden, Germany*
[b] *Department of Pharmacy, Health and Nutritional Sciences, University of Calabria, I-87036 Arcavacata di Rende (CS), Italy;*
[c] *IBS Center for Integrated Nanostructure Physics, Institute for Basic Science (IBS), Daejon 305-701, Republic of Korea*
[d] *Department of Energy Science, Department of Physics, Sungkyunkwan University, Suwon 440-746, Republic of Korea*
[e] *Centre of Polymer and Carbon Materials, Polish Academy of Sciences, M. Curie-Sklodowskiej 34, Zabrze 41-819, Poland*
[f] *Children's Cancer Institute Australia, Lowy Cancer Research Centre, University of New South Wales, New South Wales, Australia;*
[g] *Australian Centre for Nanomedicine, University of New South Wales, New South Wales, Australia;*
* *Tel. +82312994055; Fax, +82312996505, E-mail: m.ruemmeli@ifw-dresden.de or mhr1@skku.edu (M. H. Rümmeli);*

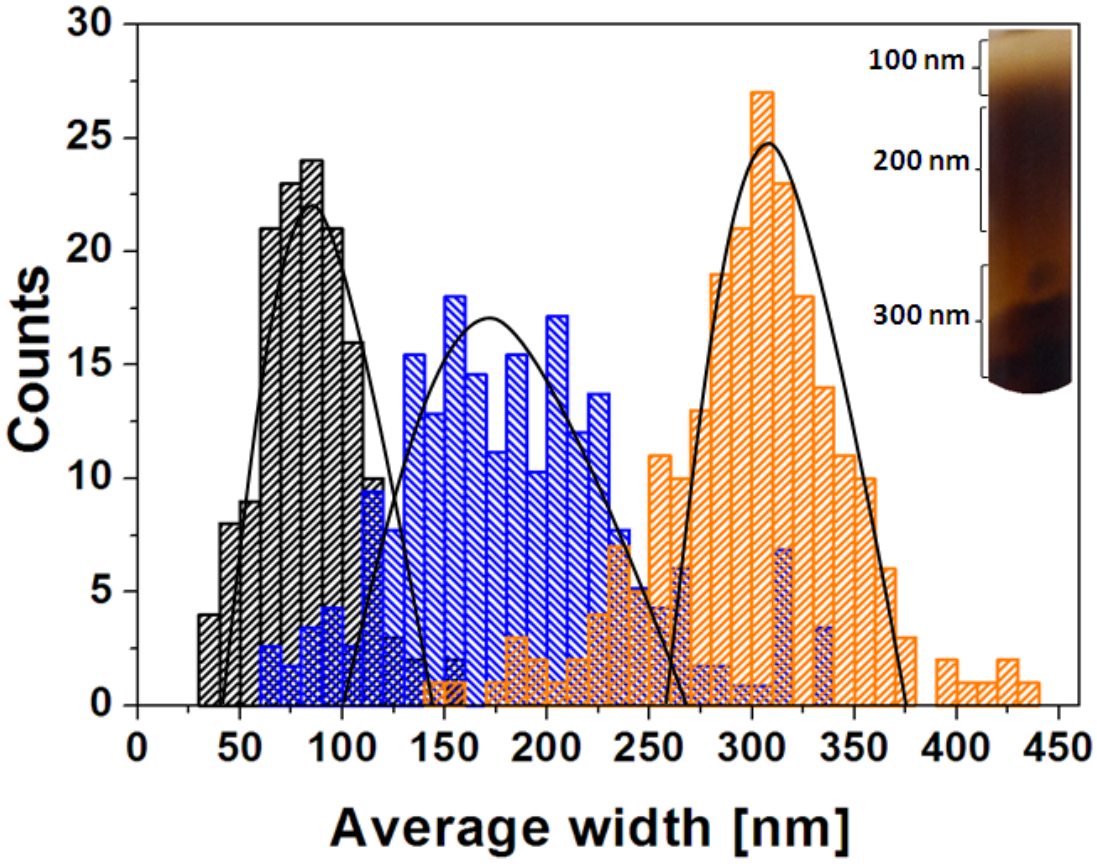

Figure S1. Histogram of the observed particle size distribution of NGO sheets at different sizes deduced from SEM images. Inset: photograph of centrifuged tube after 5 min centrifugation at 5880x g.

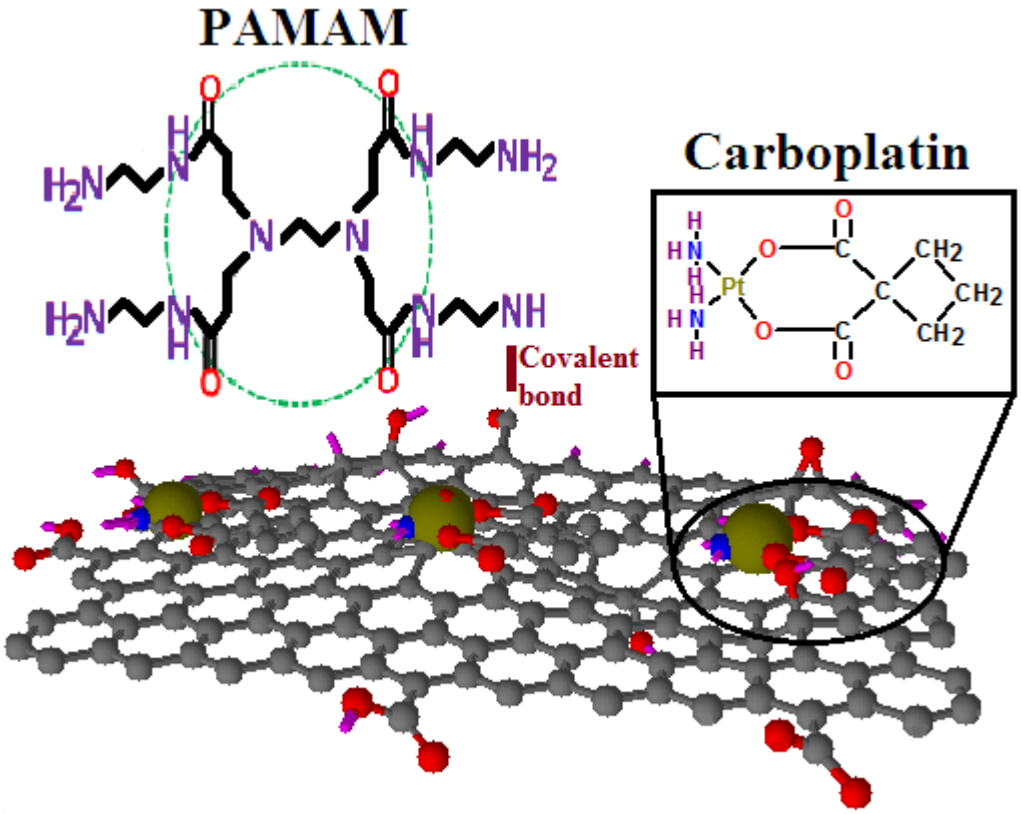

Figure S2. Schematic illustration of Nanographene oxide covalent functionalized PAMAM and loaded Carboplatin.

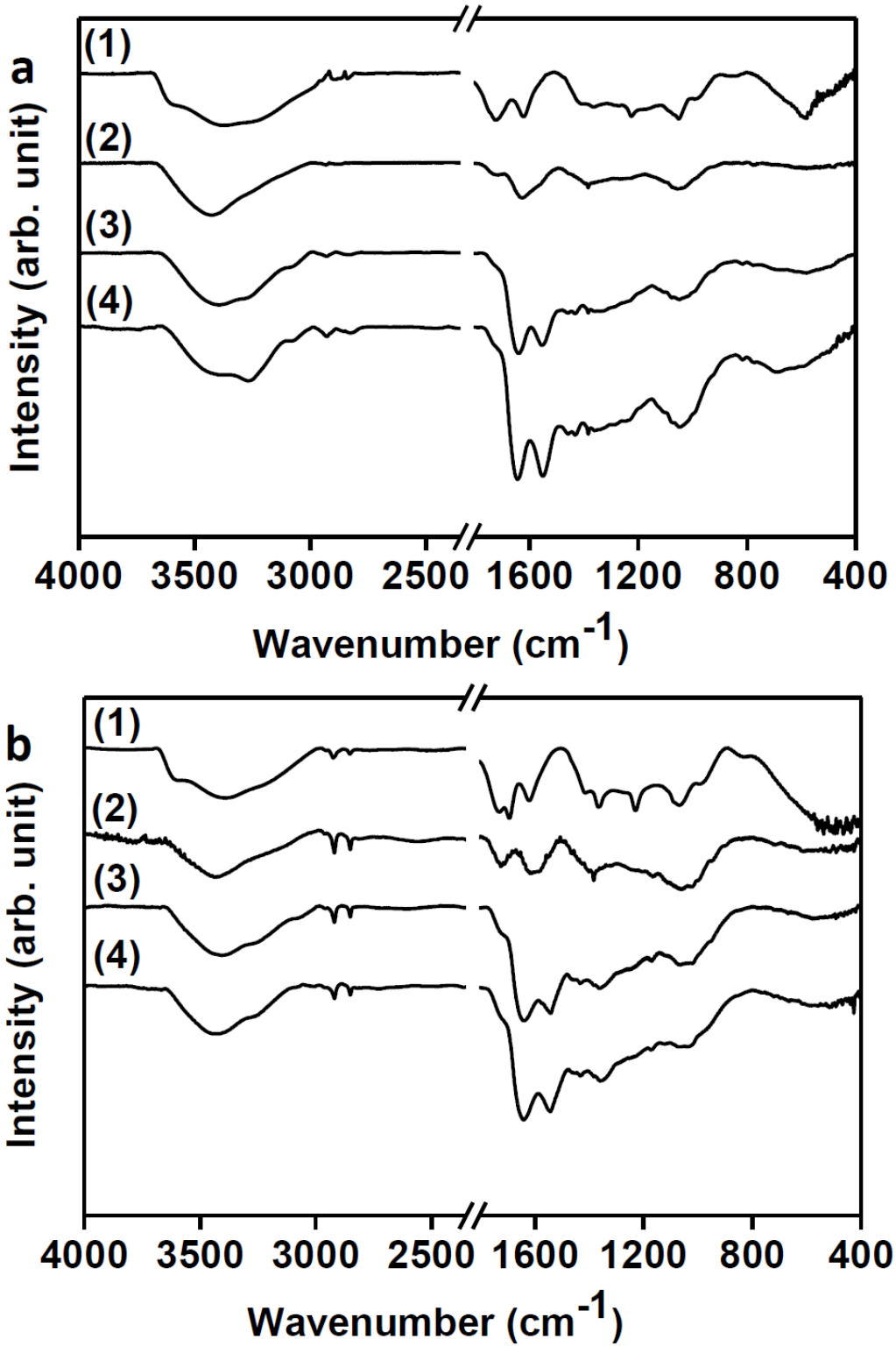

Figure S3. (a: 1-4) FTIR spectra of pristine NGO 200nm, CP/NGO, PAMAM-NGO, and CP/PAMAM-NGO respectively. B (1-4) FTIR spectra of NGO 300nm, CP/NGO, PAMAM-NGO, and CP/PAMAM-NGO, respectively.

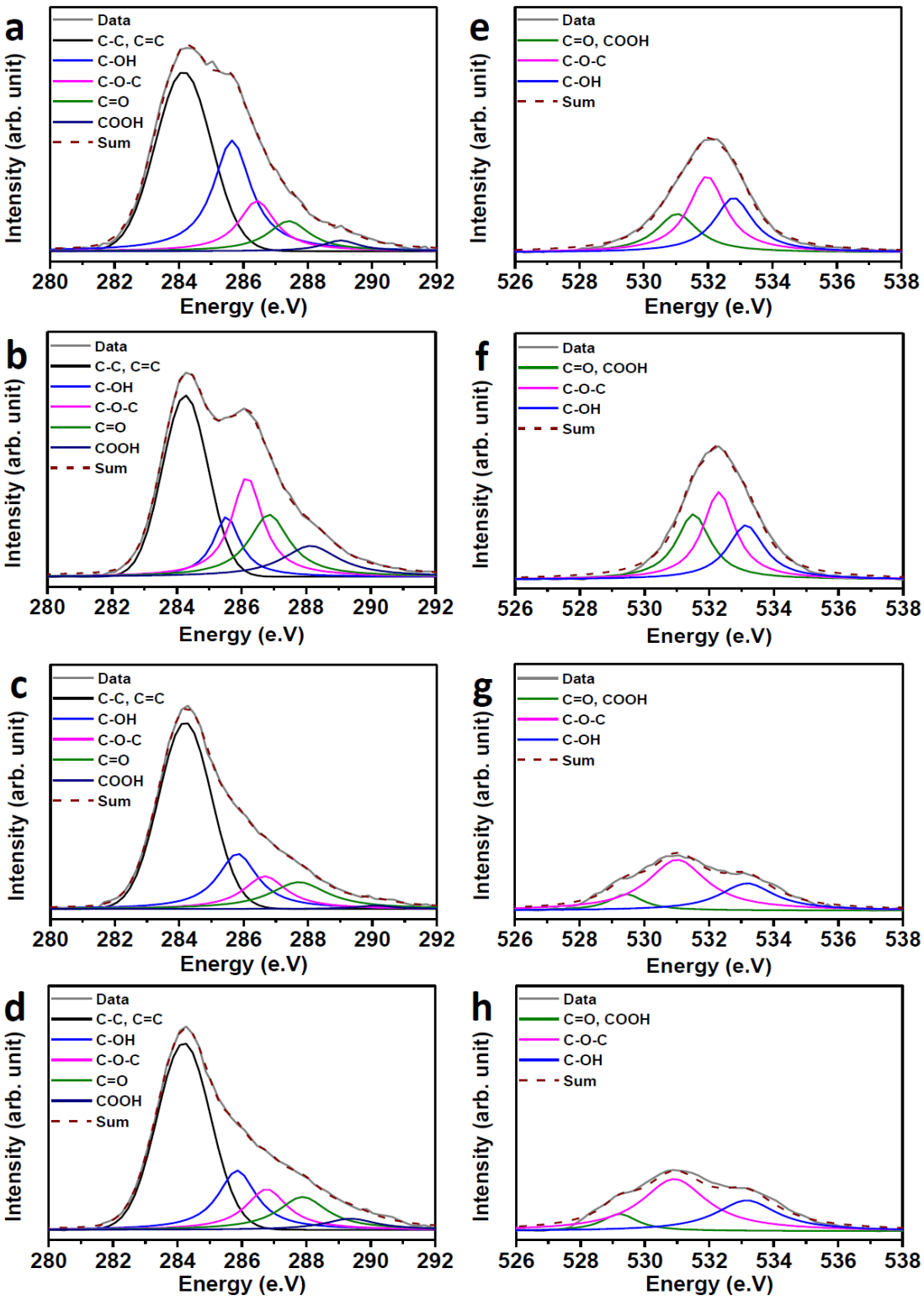

Figure S4. (a) The C1s XPS spectra of NGO 200nm (b) CP/NGO, (c) PAMAM-NGO, and (d) CP/PAMAM-NGO (e-h) O1s XPS spectra of NGO 200 nm, CP/NGO, PAMAM-NGO, and CP/PAMAM-NGO, respectively.

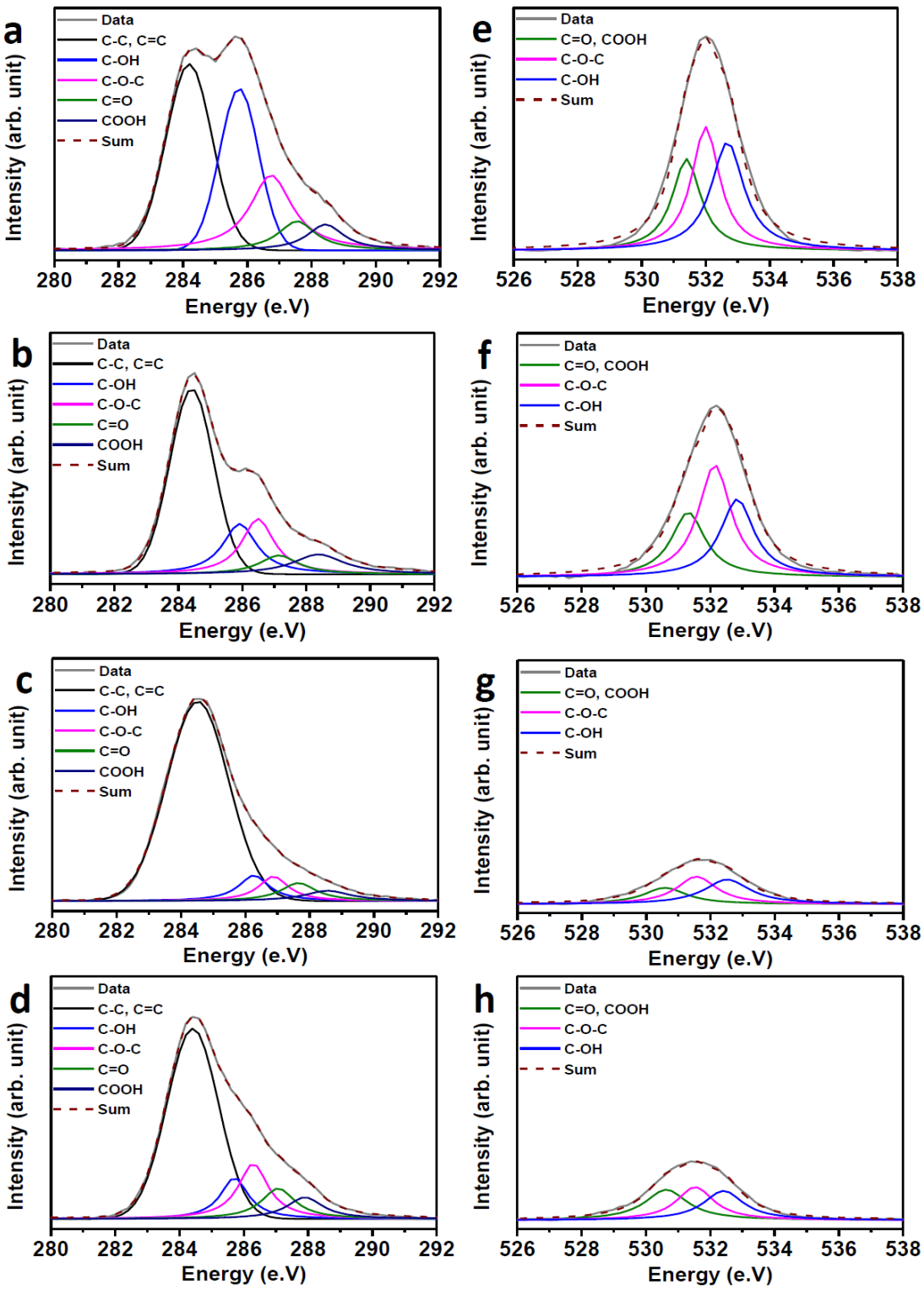

Figure S5. (a) The C1s XPS spectra of NGO 300nm, (b) CP/NGO, (c) PAMAM-NGO, and (d) CP/PAMAM-NGO. (e-h) O1s XPS spectra of NGO 300 nm, CP/NGO, PAMAM-NGO, and CP/PAMAM-NGO, respectively.

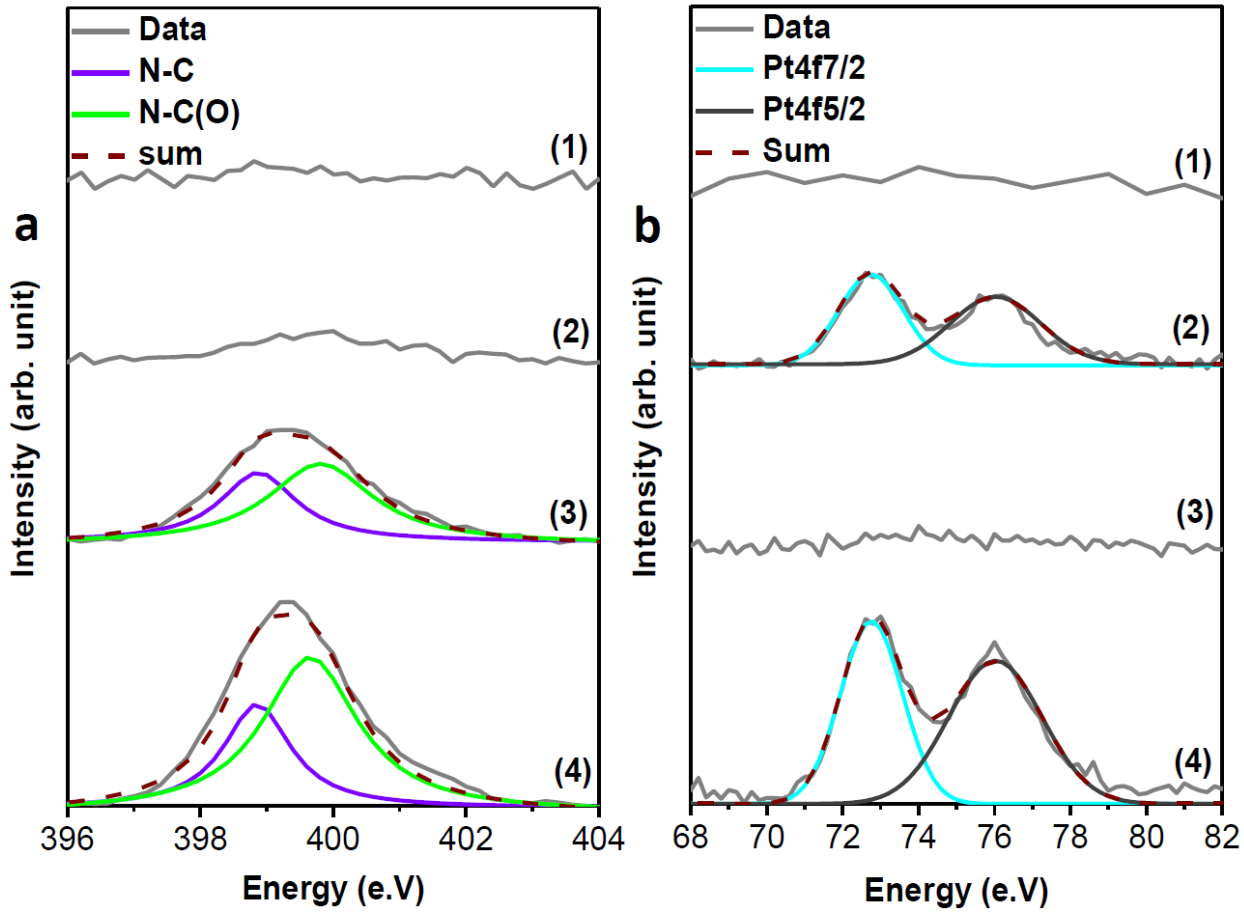

Figure S6. (a: 1-4) N1s XPS spectra of pristine NGO 300nm, CP/NGO, PAMAM-NGO, and CP/PAMAM-NGO respectively. (b: 1-4) Pt4f XPS spectra of pristine NGO 300nm, CP/NGO, PAMAM-NGO, and CP/PAMAM-NGO, respectively.

Cellular viability

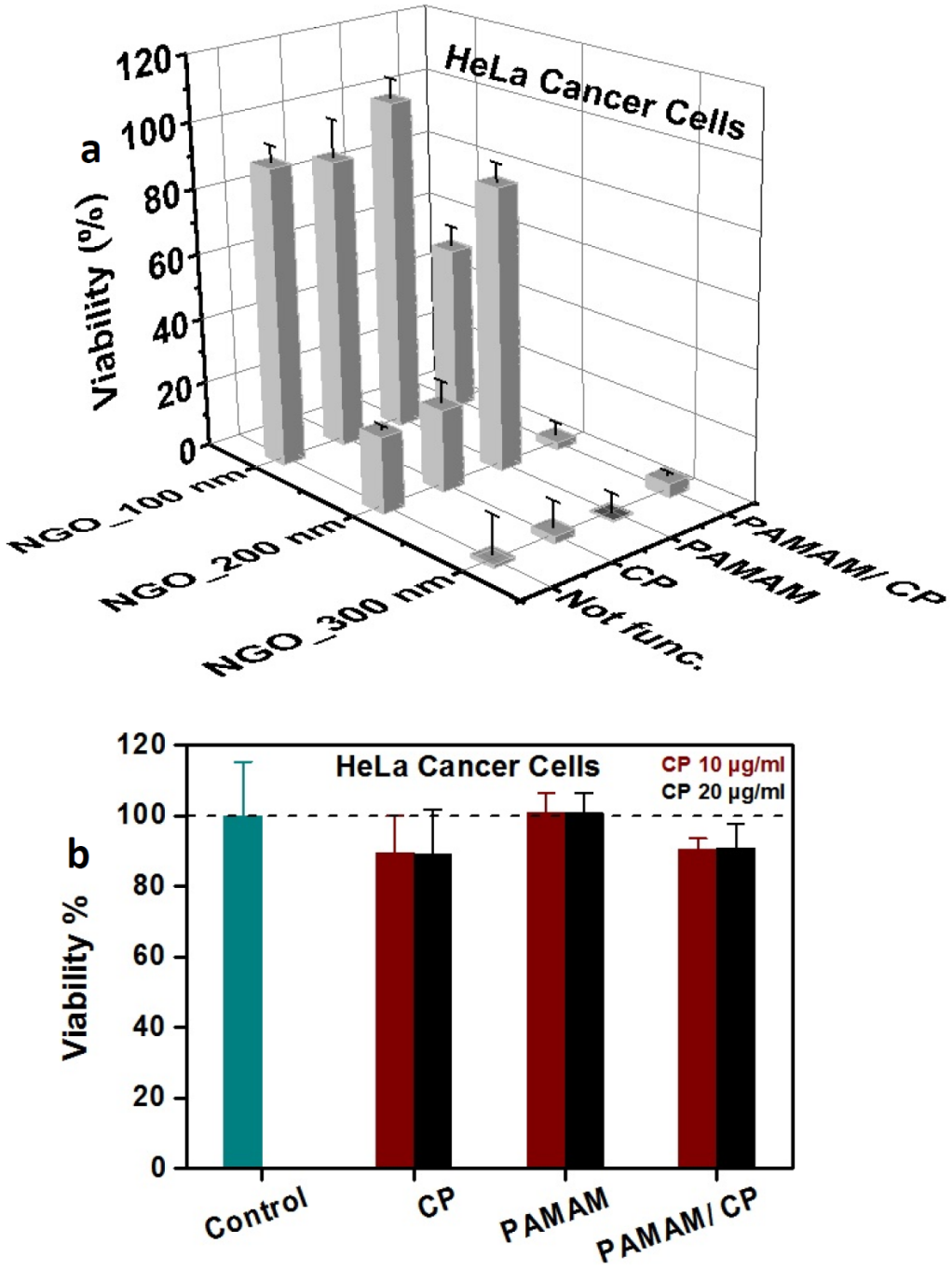

Figure S7. Histogram of cell proliferation (WST-8) of HeLa and Mesenchymal cells after 24 h of incubation time (a) pristine NGO sheets at (100 µg/ml) concentration. CP/NGO, PAMAM and CP/PAMAM. The concentration of CP was 20µg/ml. (d) Histogram f HeLa cancer cells after 24 h of incubation time with pure PAMAM, CP and CP/PAMAM.