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

Supporting Information

Graphene oxide nanocell for impairing topoisomerase and DNA in cancer cells

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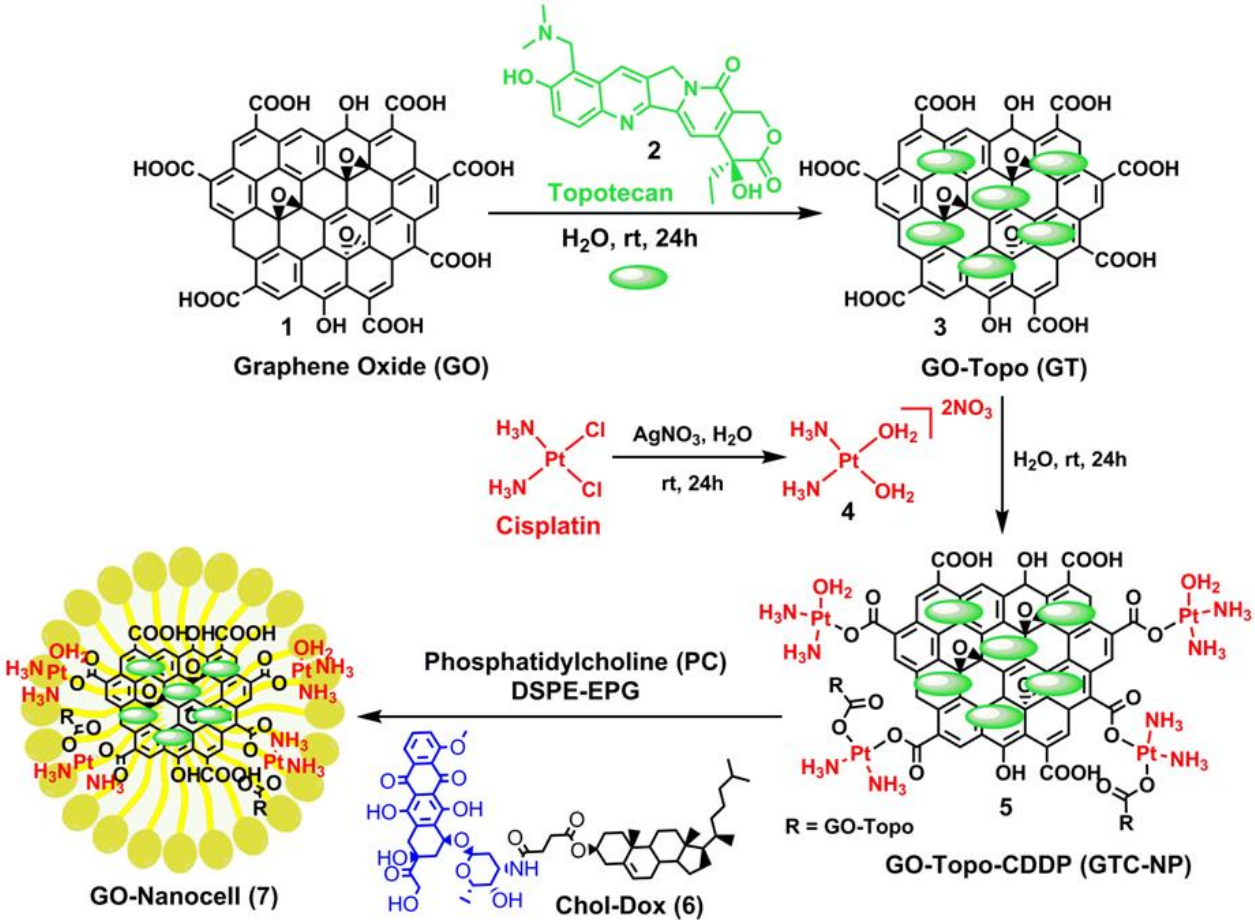


Fig. S1: Synthetic scheme of GO-Nanocell.

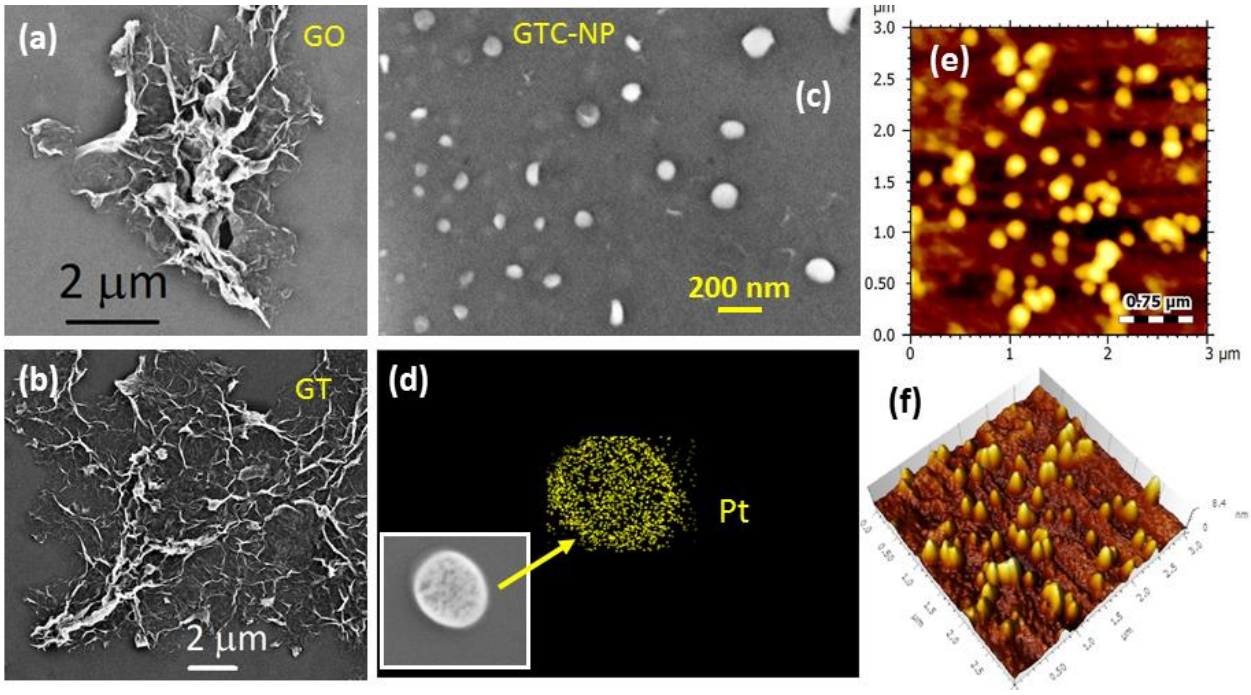


Fig. S2: (a-c) FESEM images of GO, GT and GTC-NPs respectively. (d) Elemental mapping of Pt from FESEM, (e,f) 2-D and 3D AFM images of GTC-NPs respectively.

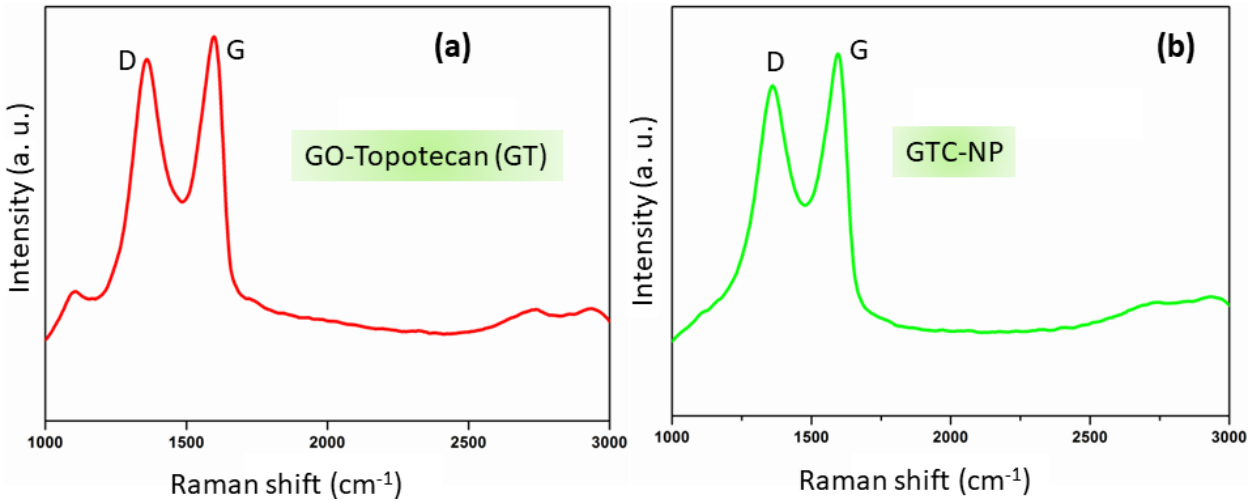


Fig. S3: (a, b) Resonance Raman spectra of GT and GTC-NPs confirming the presence of GO moiety.

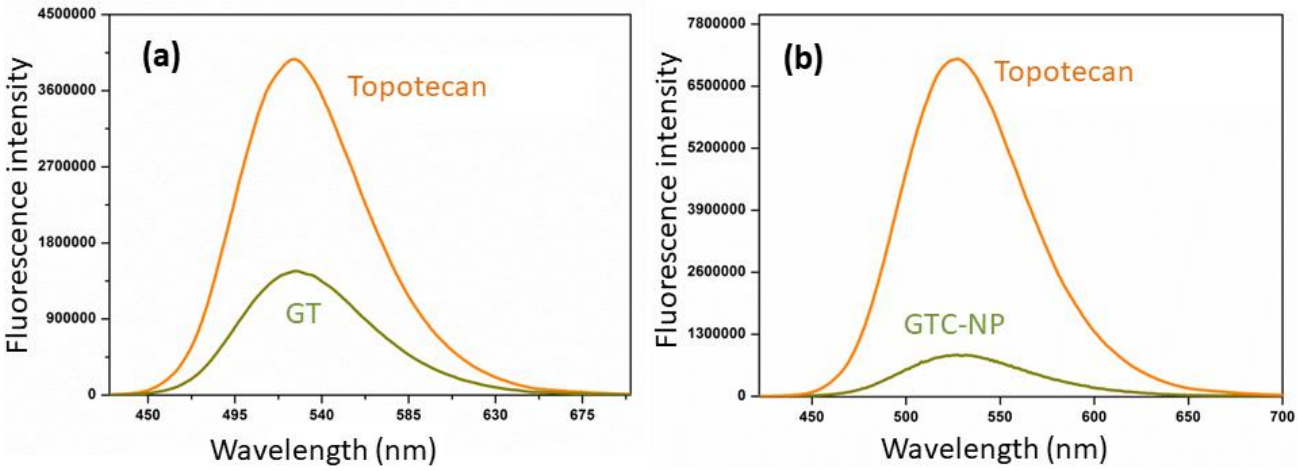


Fig. S4: (a, b) Fluorescence emission spectra of GT and GTC-NPs confirming the stacking of topotecan on GO.

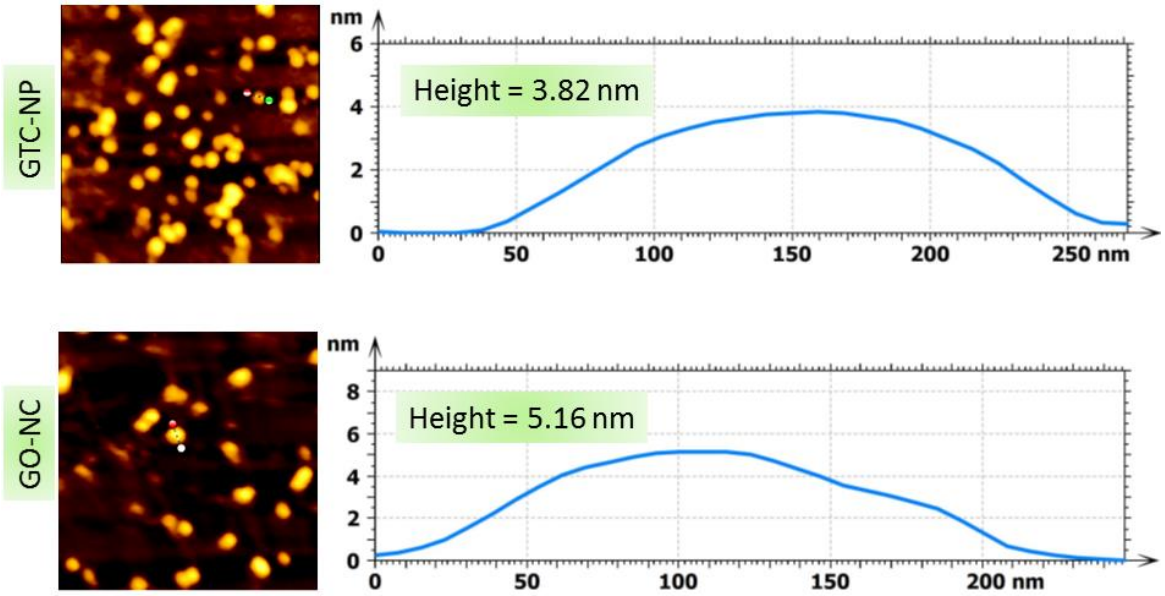


Fig. S5: Height profile of GTC-NP and GO-Nanocell measured from AFM.

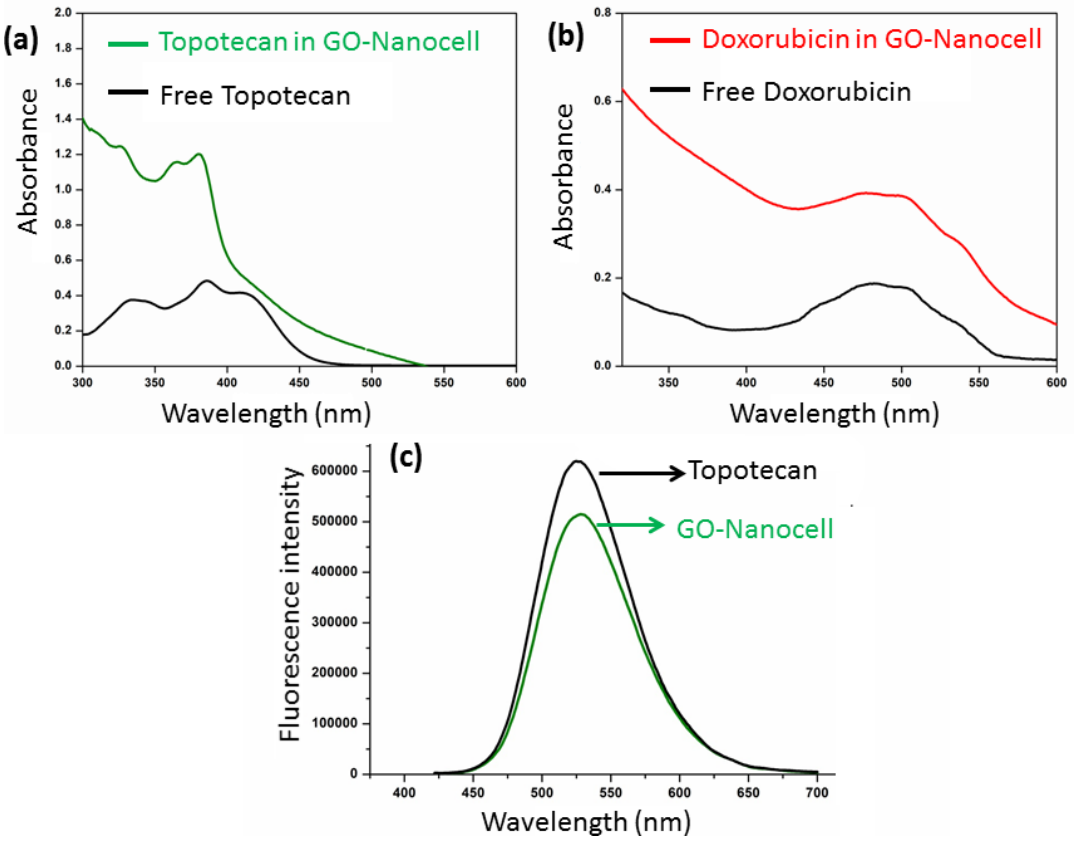
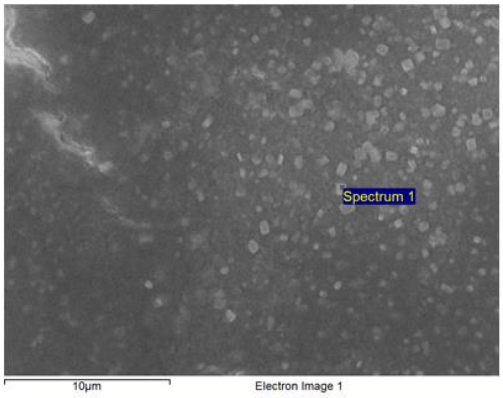


Fig. S6: (a, b) UV-Vis spectra of GO-Nanocells confirming the presence of topotecan and doxorubicin. (c) Fluorescence emission spectra of GO-nanocell exhibiting the stacking of topotecan on GO surface.



Element	Weight%	Atomic%
C K	33.42	42.61
N K	8.83	9.65
O K	49.19	47.07
Pt M	**8.56**	**0.67**
Totals	100.00	

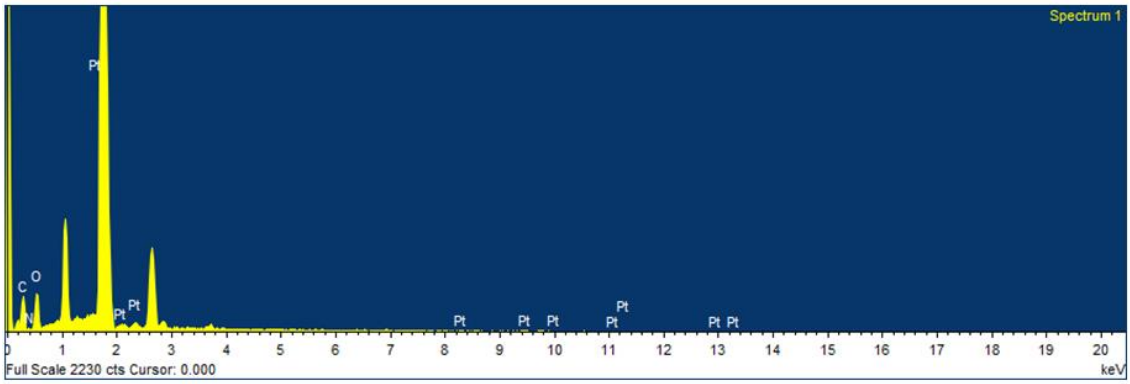


Fig. S7: EDAX of GO-Nanocell from FESEM confirming the presence of cisplatin.

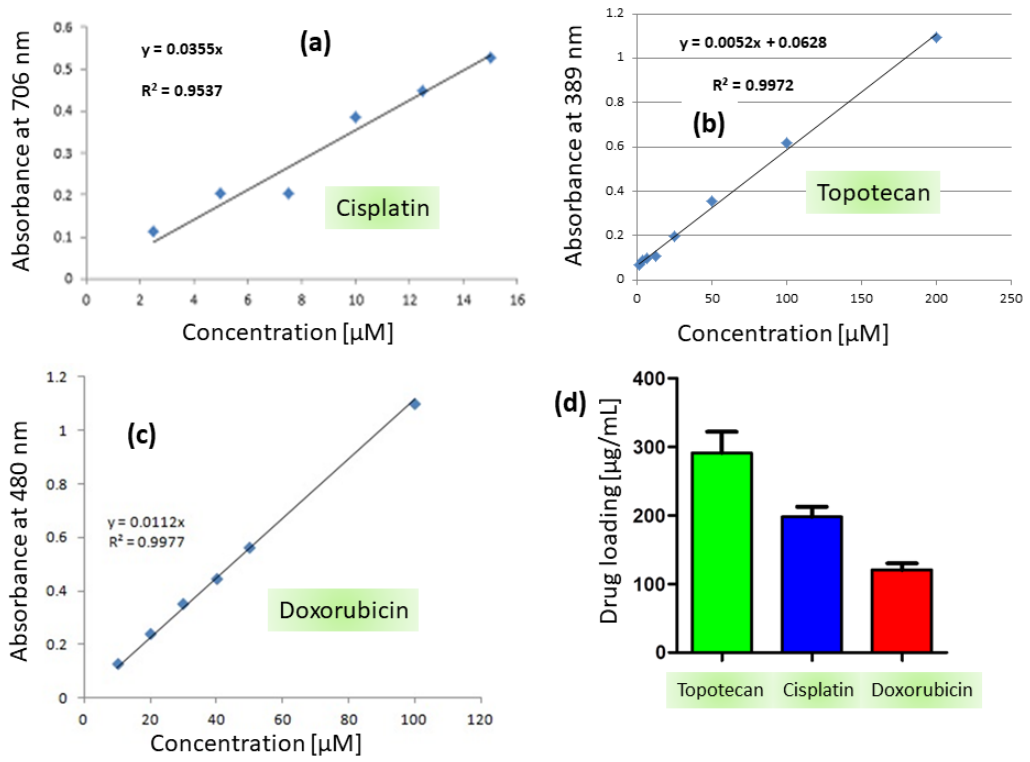


Fig. S8: (a-c) Absorbance versus concentration graph of cisplatin, topotecan and doxorubicin respectively determined by UV-Vis spectra. (d) Loading of topotecan, cisplatin and doxorubicin in GO-Nanocell.

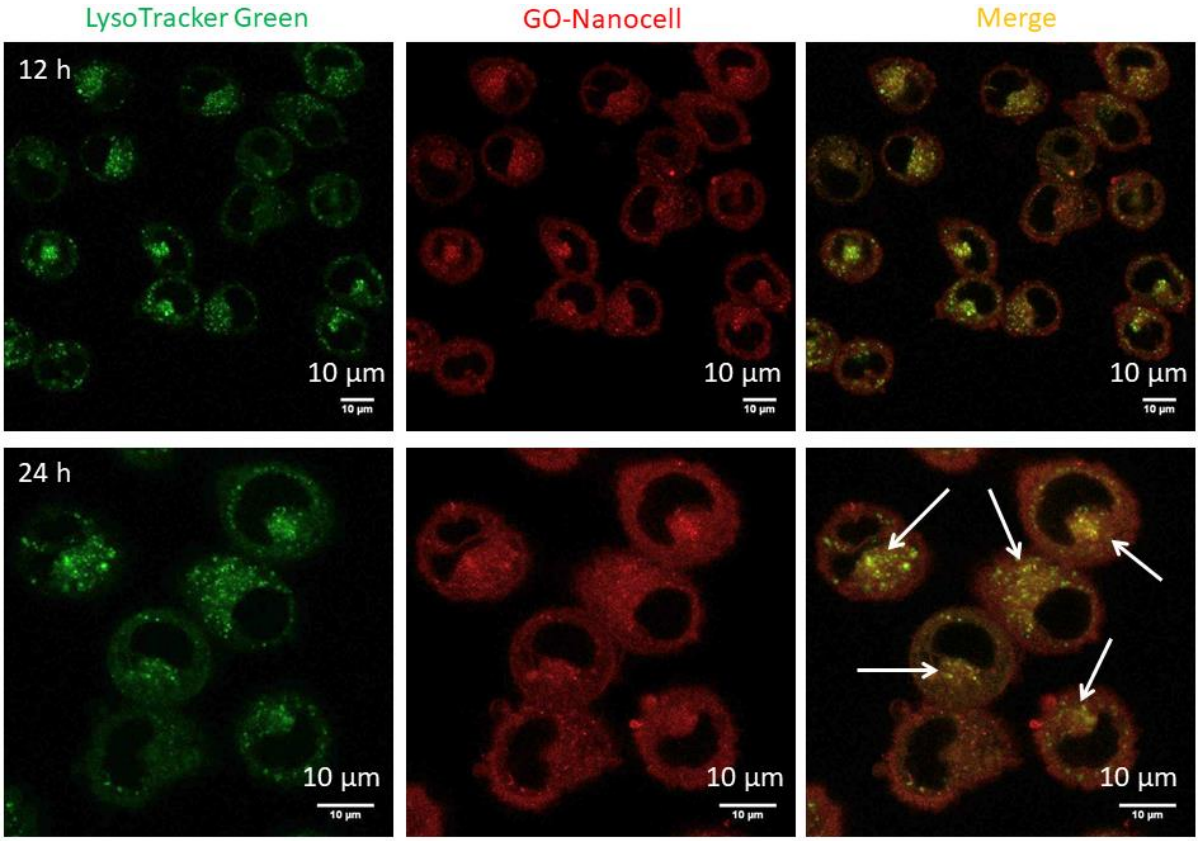


Fig. S9: CLSM images of HeLa cells at 12 h and 24 h post incubation with GO-Nanocells (red fluorescence). Lysosomes were stained with green fluorescently labeled LysoTracker Green DND-26. Scale bar = 10 µm.

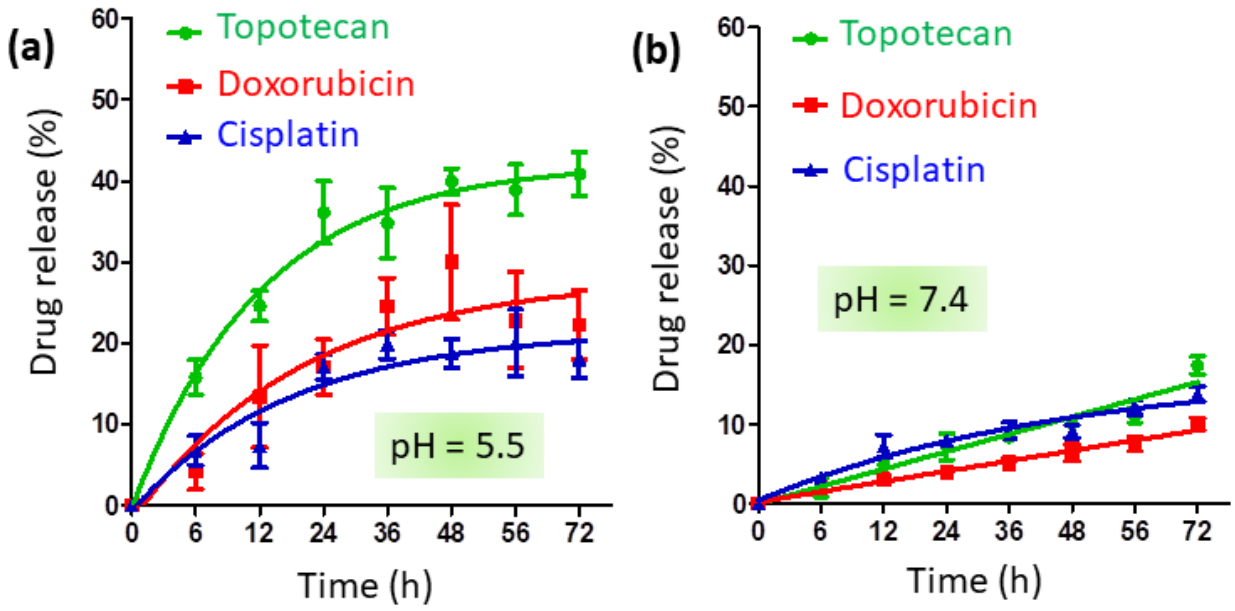


Fig. S10: (a, b) Release profile of different drugs from GO-Nanocells at pH = 5.5 and 7.4 respectively over 72 h.

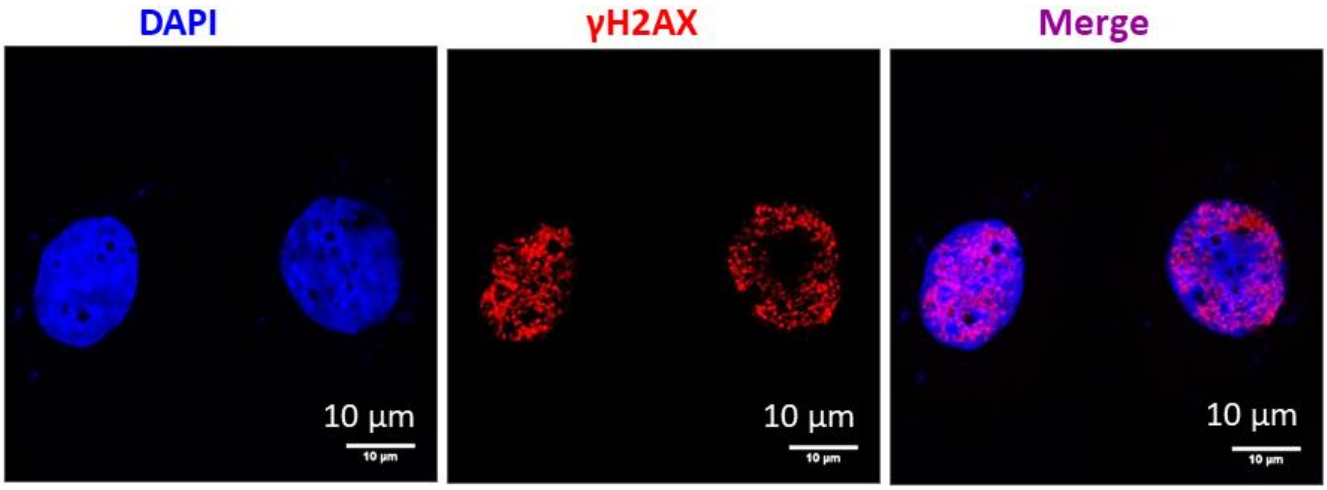


Fig. S11: CLSM images of HeLa cells after treatment with GO-Nanocells for 24 h. DNA damage marker γH2AX was stained with antibody labeled with Alexa Fluor 594 (red fluorescence) and nuclei were stained with blue fluorescent DAPI. Scale bar = 10 µm.

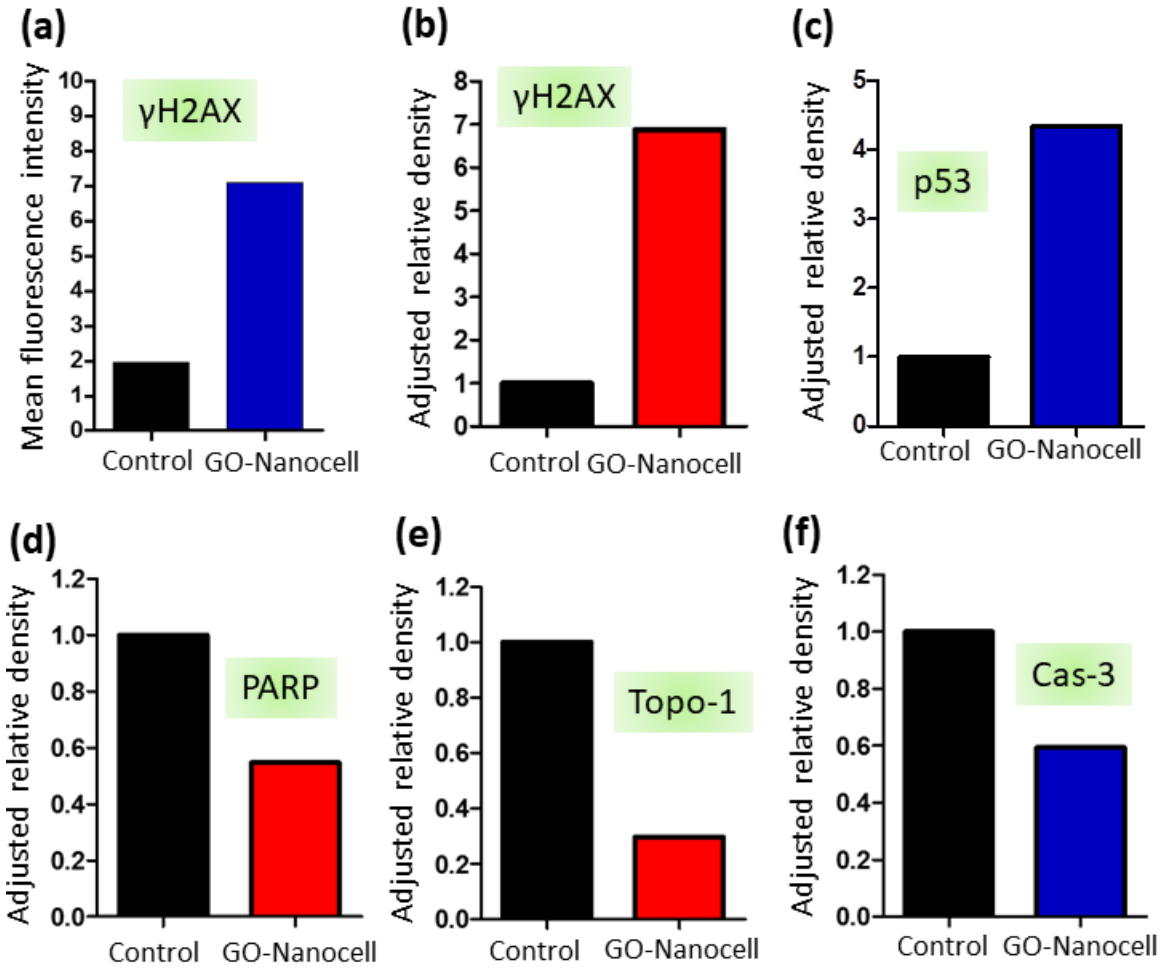


Fig. S12: HeLa cells were treated with GO-Nanocells for 24 h and (a, b) γH2AX expression was quantified from confocal microscopy and Western blot analysis respectively and (c-f) quantification of p53, PARP, Topo-1 and Cas-3 from Western blot analysis respectively.

Time	Pearson's Correlation Coefficient	Mander's Coefficients (TM1 Fraction of C1 overlapping C2)	Mander's Coefficients (TM2 Fraction of C2 overlapping C1)	% Volume Colocalization
1h	0.3157	0.6101	0.6074	***13.02%***
3h	0.4028	0.6689	0.7061	***19.94%***
6h	0.8811	0.9167	0.6388	***42.19%***
12h	0.7707	0.544	0.8510	***36.20%***
24h	0.6569	0.6124	0.6209	***31.34%***

Table S1: Quantification of % volume colocalization of GO-Nanocells into lysosomes of HeLa cells in different time points (1h, 3h, 6h, 12h and 24h) from confocal microscopy.