

## Supporting Information

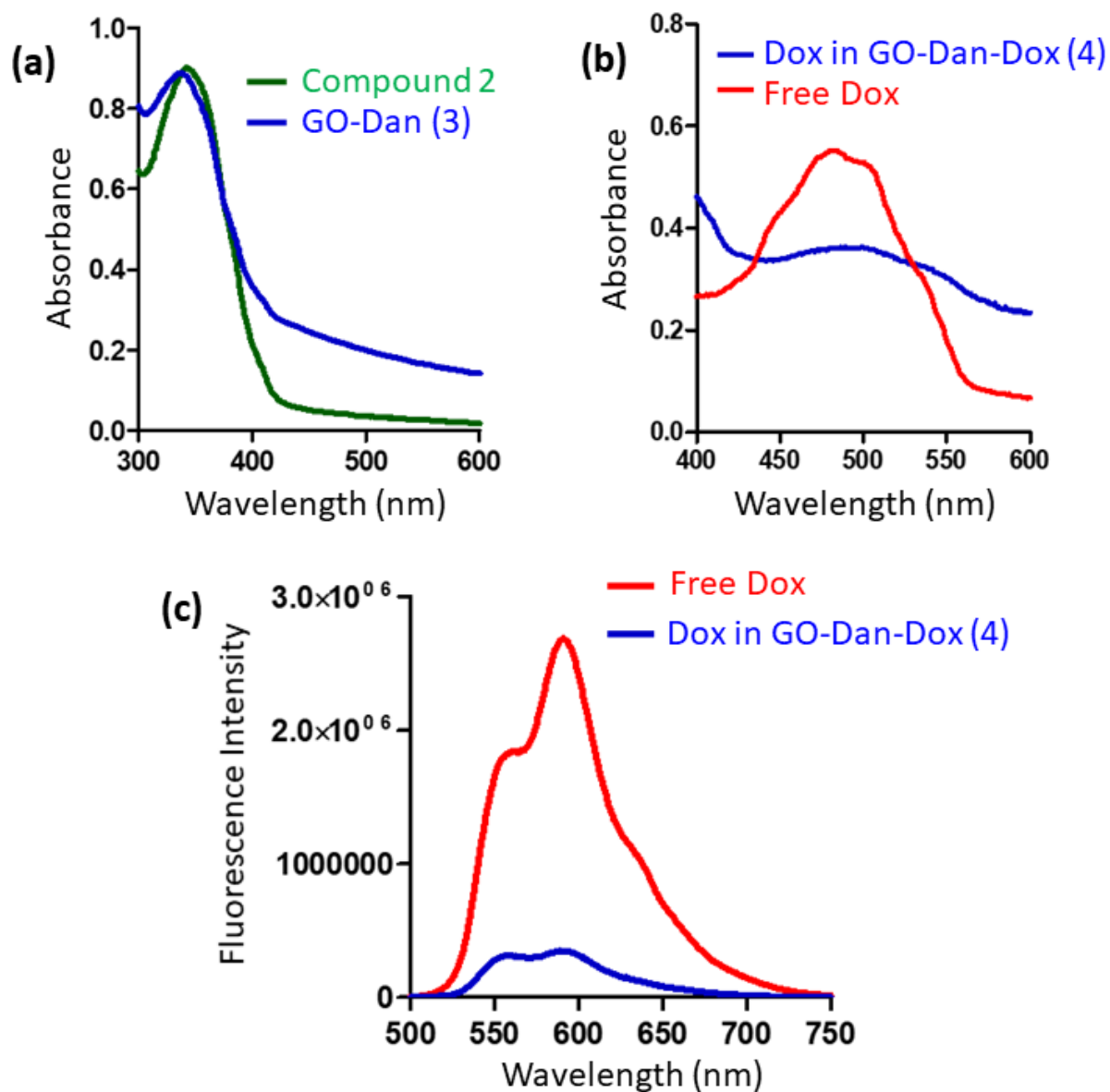
### Inducing Endoplasmic Reticulum Stress in Cancer Cells by Graphene Oxide-Based Nanoparticles

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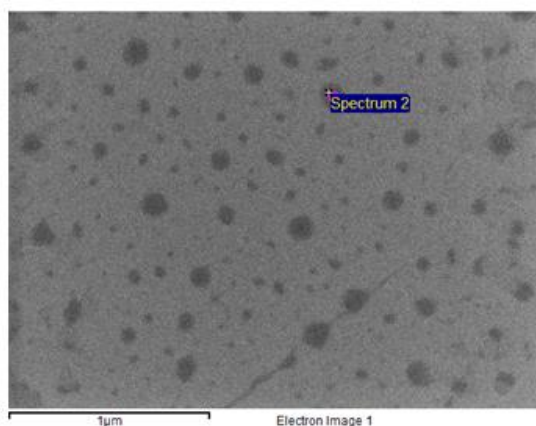
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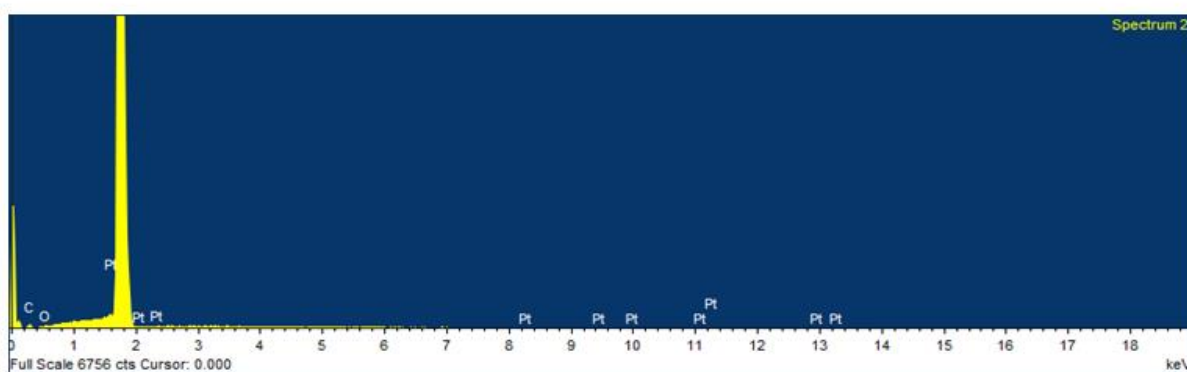
Email: [Sudipta.basu@iitgn.ac.in](mailto:Sudipta.basu@iitgn.ac.in) and [nballav@iiserpune.ac.in](mailto:nballav@iiserpune.ac.in)



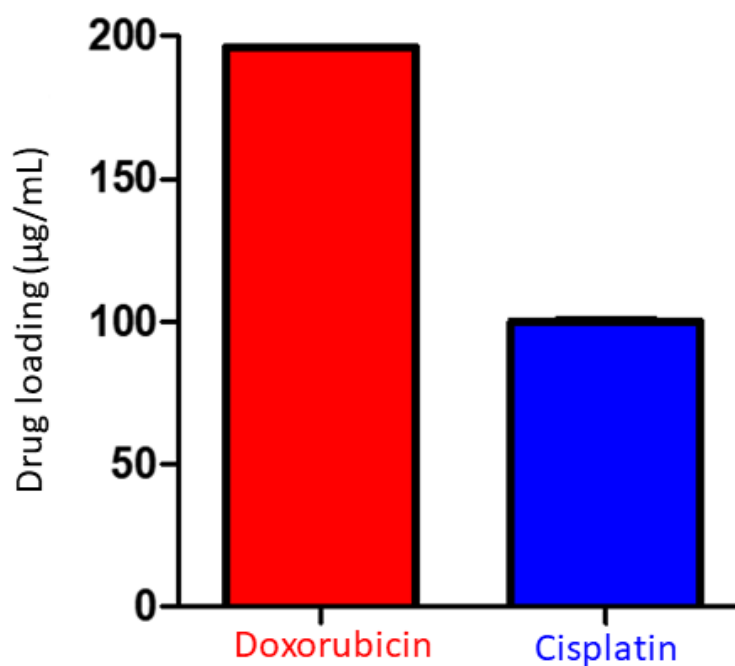
**Fig. S1:** (a, b) UV-Vis spectra confirming the presence of dansyl and dox. (c) Fluorescence emission spectra exhibiting the stacking of dox on GO surface.



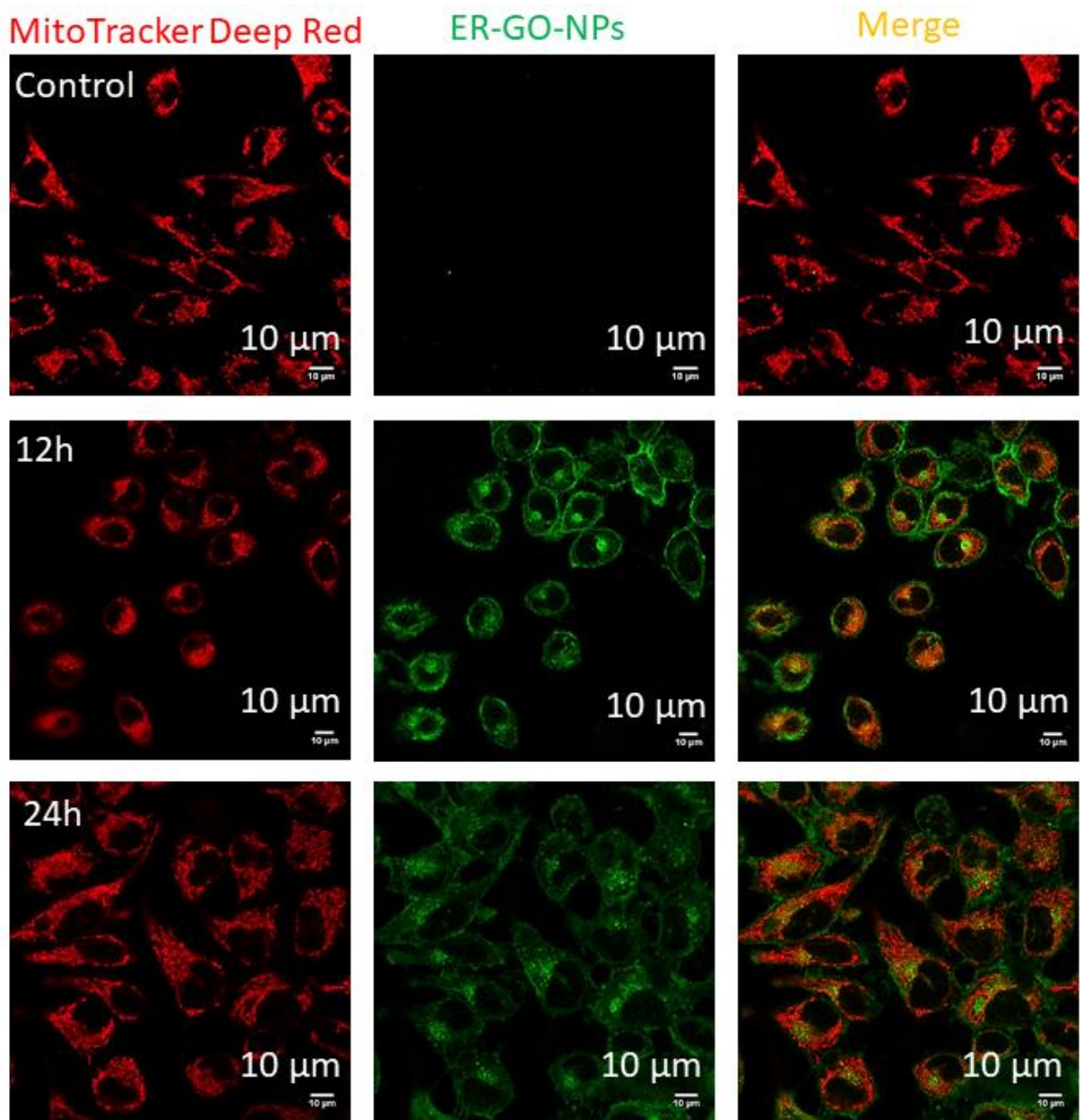
| Element | Weight % | Atomic % |
|---------|----------|----------|
| C       | 56.68    | 83.79    |
| O       | 12.04    | 13.37    |
| Pt      | 31.27    | 2.85     |



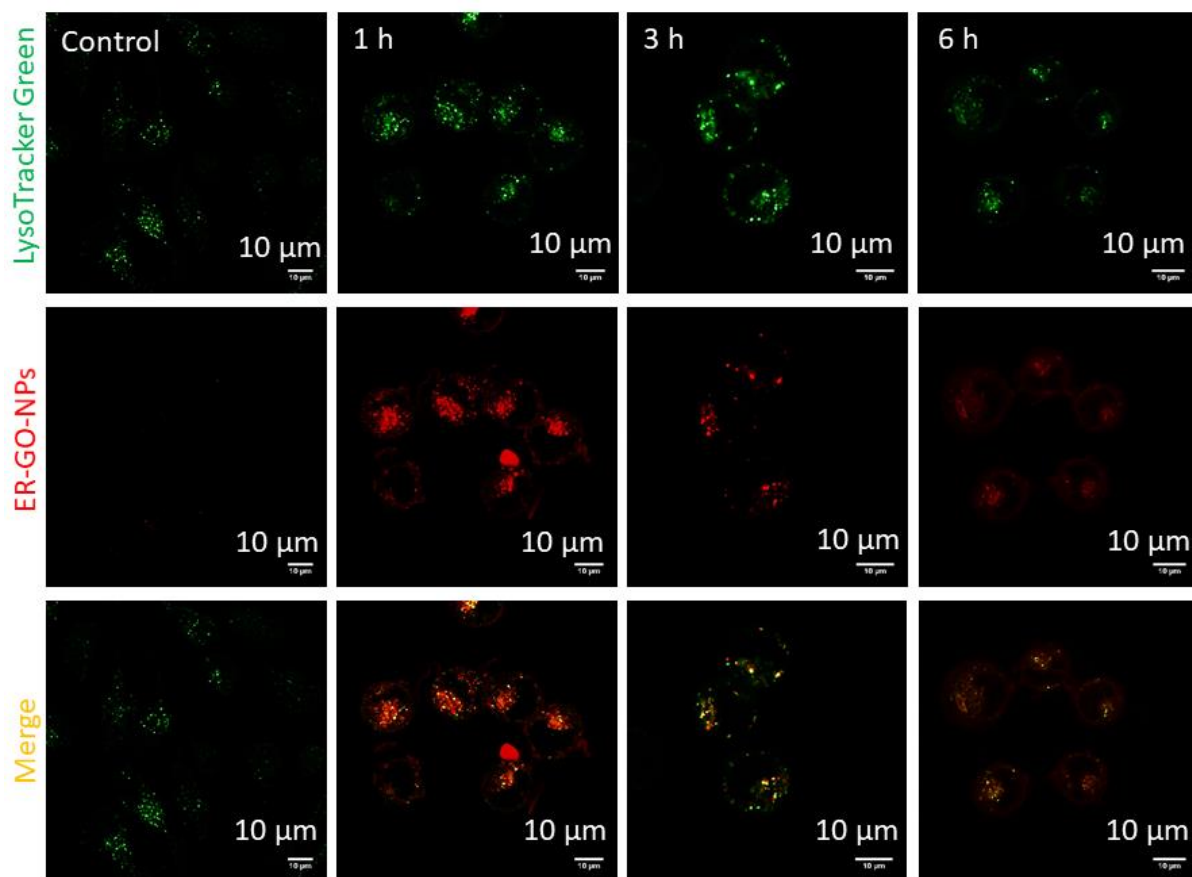
**Fig. S2:** EDAX of ER-GO-NPs from FESEM confirming the presence of cisplatin.



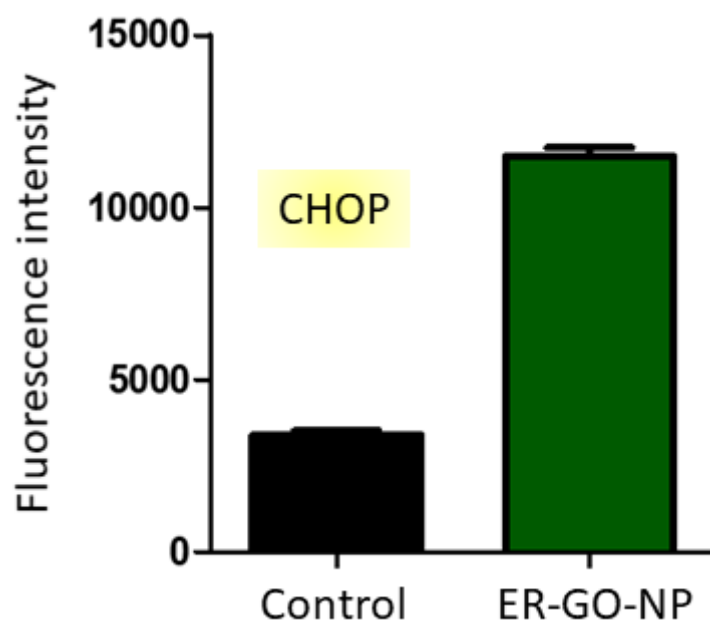
**Fig. S3:** Drug loading of dox and cisplatin in ER-GO-NPs.



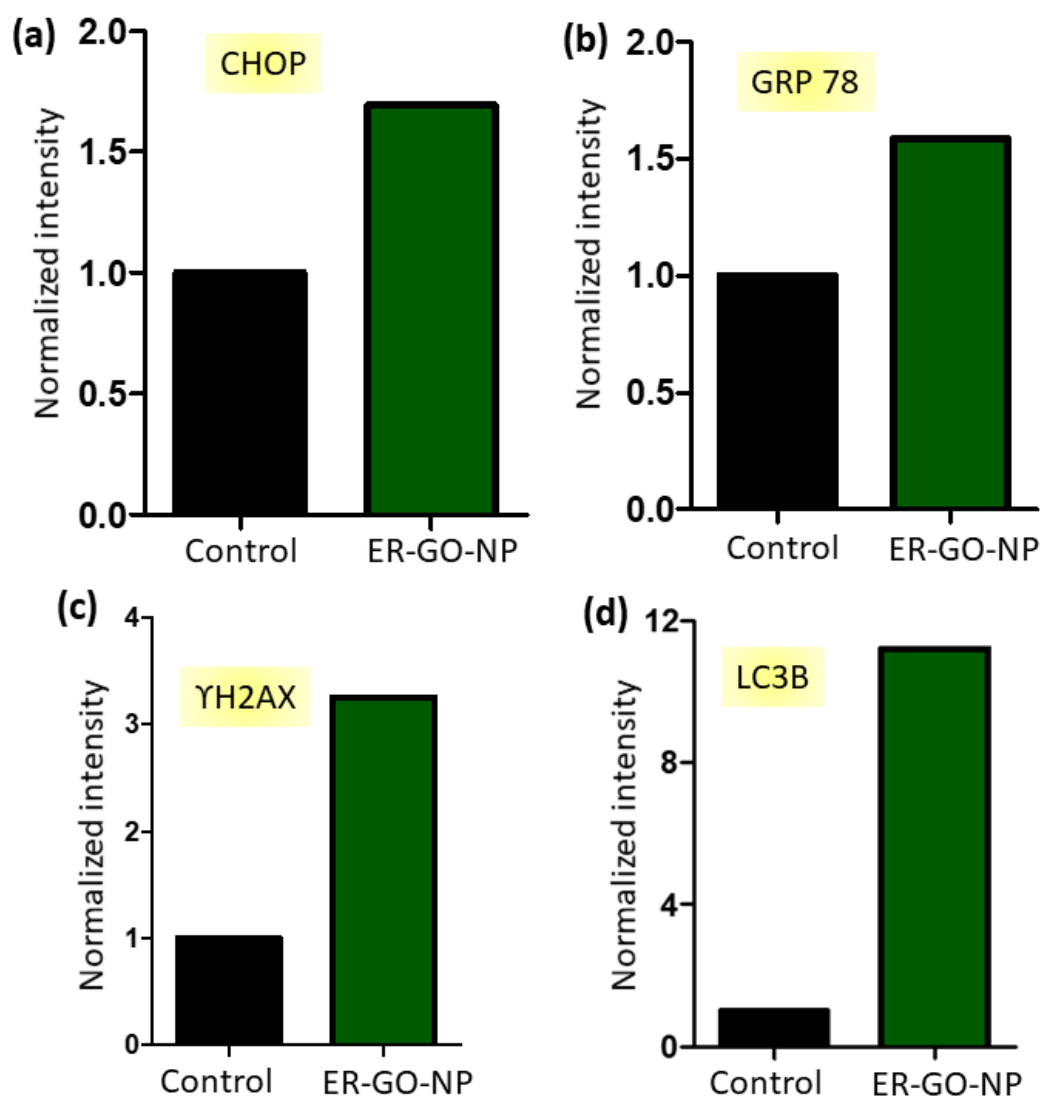
**Fig. S4:** CLSM images of HeLa cells at 12 h and 24 h post incubation with ER-GO-NPs. Mitochondria were stained with red fluorescent Mito Tracker Deep Red. Scale bar = 10 μm.



**Fig. S5:** CLSM images of HeLa cells at 1 h, 3 h and 6 h post incubation with ER-GO-NPs. Lysosomes were stained with LysoTracker Green DND-26 (green fluorescent). Scale bar = 10 μm.



**Fig. S6:** Quantification of CHOP expression in HeLa cells from confocal microscopy.



**Fig. S7:** Quantification of (a) CHOP (b) GRP 78 (c)  $\gamma$ H2AX (d) LC3B from western blot analysis after treatment of HeLa cells with ER-GO-NPs.

| Treatment Time                    |                                    | 3 h        | 6 h        | 12 h       | 24 h       |
|-----------------------------------|------------------------------------|------------|------------|------------|------------|
| Image Channels                    |                                    | C1 (red)   | C1 (red)   | C1 (red)   | C1 (red)   |
|                                   |                                    | C3 (green) | C3 (green) | C3 (green) | C3 (green) |
| Pearsons' Correlation Coefficient |                                    | 0.7264     | 0.8668     | 0.7371     | 0.8619     |
| Manders Coefficients              | M1 (fraction of C1 overlapping C3) | 0.9234     | 0.9764     | 0.9551     | 0.9776     |
|                                   | M2 (fraction of C3 overlapping C1) | 0.9561     | 0.9736     | 0.9744     | 0.9791     |

**Table S1:** Quantification of co-localization of ER-GO-NPs in ER of HeLa cells at 3 h, 6 h, 12 h and 24 h from CLSM.

| Treatment Time                    |                                    | 12 h       | 24 h       |
|-----------------------------------|------------------------------------|------------|------------|
| Image Channels                    |                                    | C1 (red)   | C1 (red)   |
|                                   |                                    | C3 (green) | C3 (green) |
| Pearsons' Correlation Coefficient |                                    | 0.4697     | 0.2188     |
| Manders Coefficients              | M1 (fraction of C1 overlapping C3) | 0.3852     | 0.3151     |
|                                   | M2 (fraction of C3 overlapping C1) | 0.4217     | 0.0225     |

**Table S2:** Quantification of co-localization of ER-GO-NPs in mitochondria of HeLa cells at 12 h and 24 h from CLSM.

| Treatment Time                    |                                    | 1 h        | 3 h        | 6 h        |
|-----------------------------------|------------------------------------|------------|------------|------------|
| Image Channels                    |                                    | C1 (red)   | C1 (red)   | C1 (red)   |
|                                   |                                    | C3 (green) | C3 (green) | C3 (green) |
| Pearsons' Correlation Coefficient |                                    | 0.4132     | 0.8206     | 0.2966     |
| Manders Coefficients              | M1 (fraction of C1 overlapping C3) | 0.5733     | 0.9771     | 0.6659     |
|                                   | M2 (fraction of C3 overlapping C1) | 0.6501     | 0.9674     | 0.7361     |

**Table S3:** Quantification of co-localization of ER-GO-NPs in lysosomes of HeLa cells at 1 h, 3 h and 6 h from CLSM.