Supporting Information

Lipid droplets: their role in nanoparticle-induced oxidative stress

Armen Khatchadourian and Dusica Maysinger

Department of Pharmacology and Therapeutics, McGill University, 3655 Promenade Sir William Osler, Montreal, Quebec, Canada H3G 1Y6.

Email: dusica.maysinger@mcgill.ca

Corresponding author: Dr Dusica Maysinger. Tel: (514) 398-1264 or (514) 398-4400 (ext 0838); Fax: (514) 398-6690

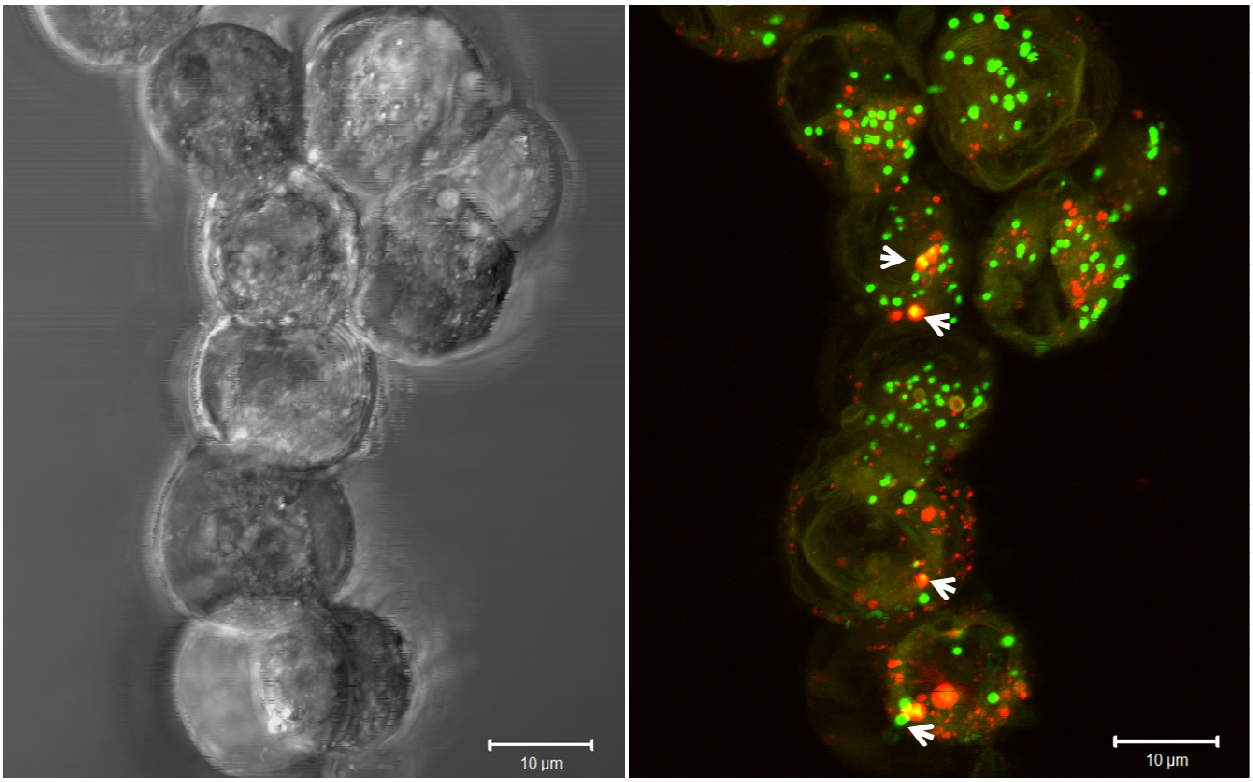
This section includes:

- SI Figure 1: Examination of colocalization by confocal microscopy between lipid droplets and lysosomes in PC12 cells following CdTe nanoparticle treatment
- SI Figure 2: Examination of colocalization by confocal microscopy between lipid droplets and lysosomes in PC12 cells treated with oleic acid
- SI Figure 3: Assessment of cell viability upon CdTe nanoparticle treatment in serum-containing media and effect of oleic acid or palmitic acid priming on cell viability.

Supporting Information

Figure SI 1

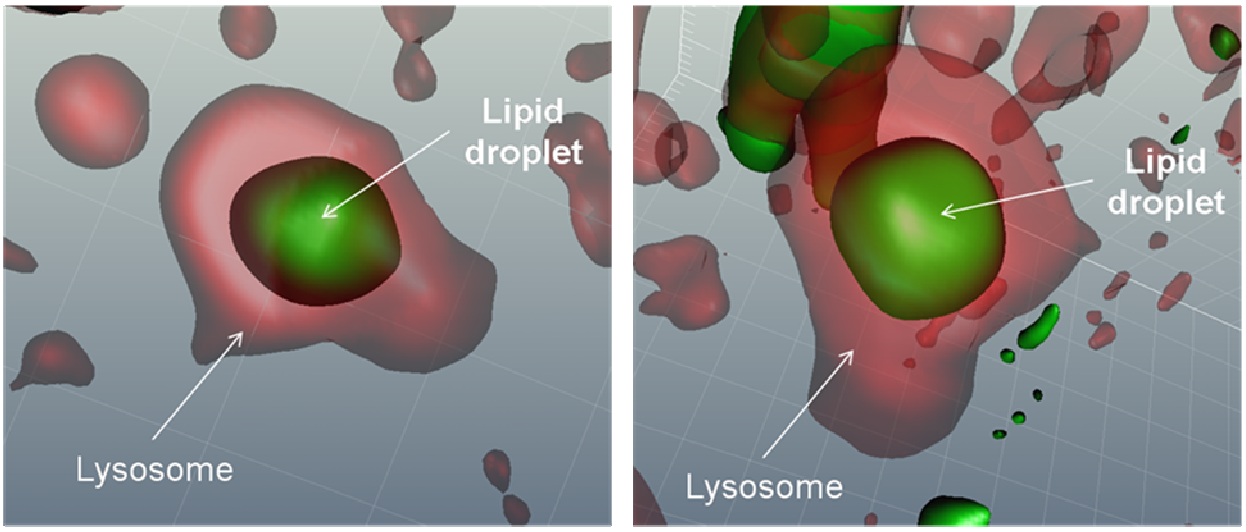
A



DIC

Lipid droplets (green)
Lysosomes (red)

B



Supporting Information

Figure SI1: Relative localization of LDs and lysosomes in cells exposed to highly toxic "aged" CdTe nanoparticles. A) PC12 cells seeded on confocal chamber slides were deprived of serum and incubated with CdTe nanoparticles (23 nM) for 24h. LDs were labeled with Bodipy 493/503 (38 µM) and lysosomes with LTR (500 nM). Yellow regions indicated by the white arrow heads suggest LD-lysosomal colocalization. Scale bars, 10 µm. B) 3D image isosurface reconstruction of lipid droplets found within lysosomes was done using the 3D image analysis software Imaris (Bitplane). The analysis strongly supports a colocalization of lipid droplets with lysosomes under highly toxic CdTe nanoparticle treatment.

Figure SI 2

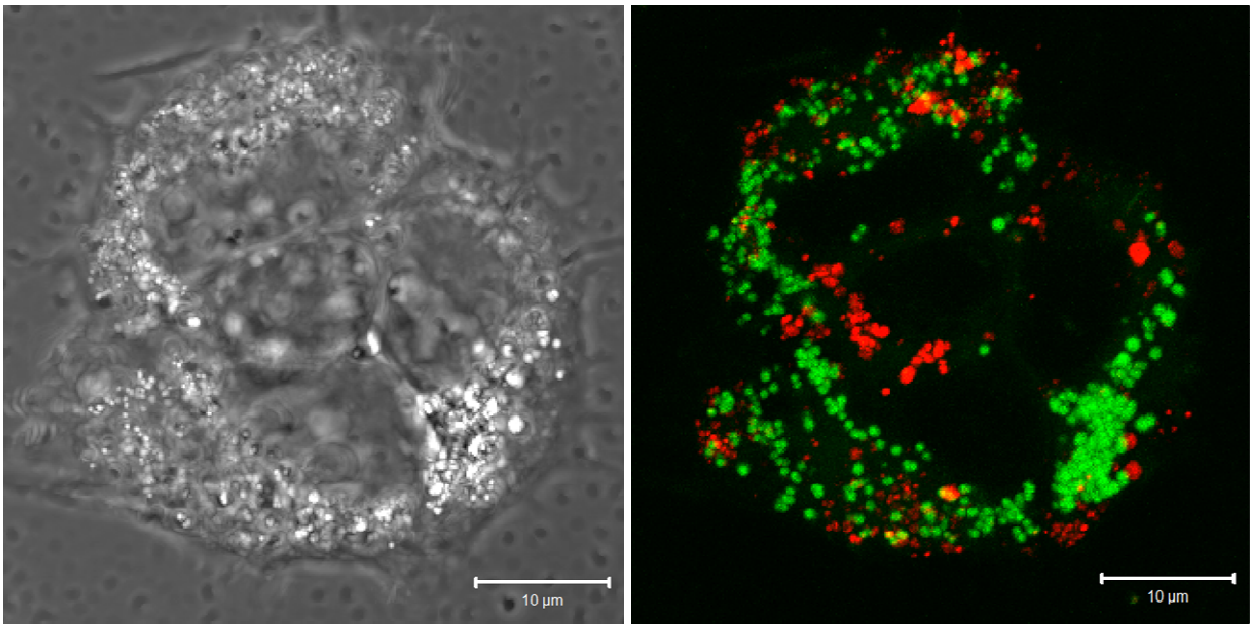


Figure SI2: Assessment of LD-lysosome colocalization in oleic acid-treated PC12 cells. Cells were cultured in the presence of OA (400 µM) for 24 h. LDs (green) and lysosomes (red) were stained with Bodipy 493/503 (38 µM) and LTR (500 nM), respectively, and do not seem to be found in close proximity as suggested by the lack of colocalization. Differential interference contrast (DIC) indicates the presence of four cells in the field. Scale bars, 10 µm.

Figure SI 3

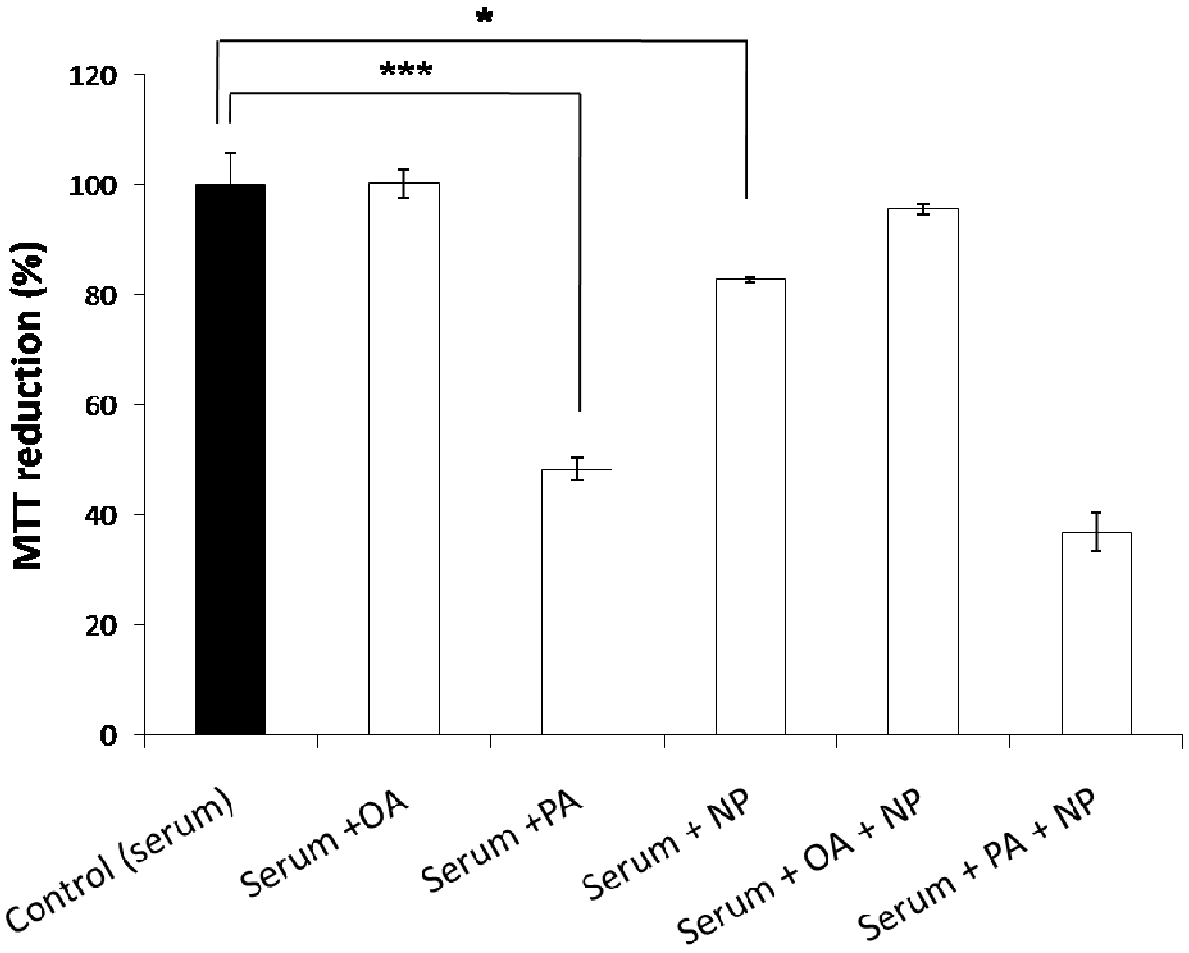


Figure SI3: Decrease in cell viability upon CdTe nanoparticle treatment in serum-containing media and mild protective effect with oleic acid priming. Cells were primed with oleic acid (400 μM), palmitic acid (400 μM) for 24 h. They were washed and incubated in serum-containing media for 48h with or without CdTe nanoparticle (NP) treatment (23 nM). Cell viability was determined by using the MTT reagent. Data are expressed as the mean (%) ± standard error of the mean (SEM). Statistically significant differences are indicated by *** $p<0.001$ or *$p<0.05$.