Electronic Supplementary Information

Ceria nanoparticles with Rhodamine B as a powerful theranostic agent against intracellular oxidative stress

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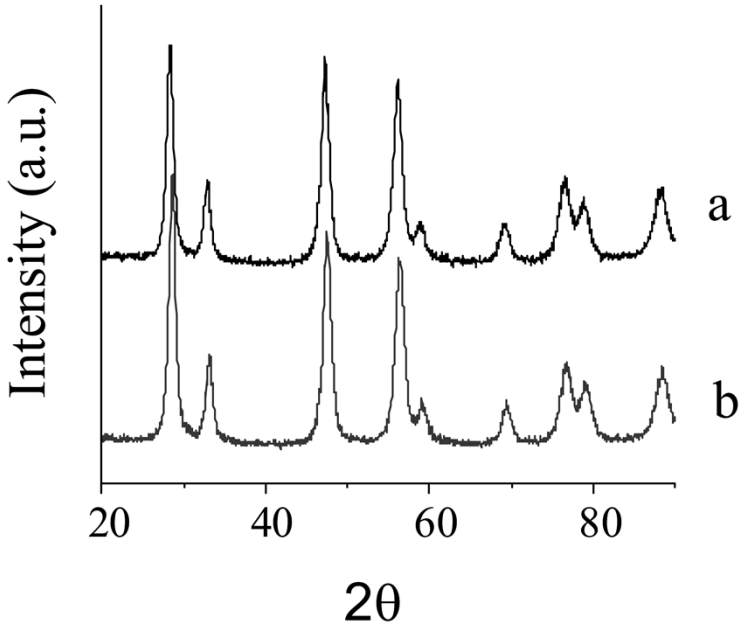
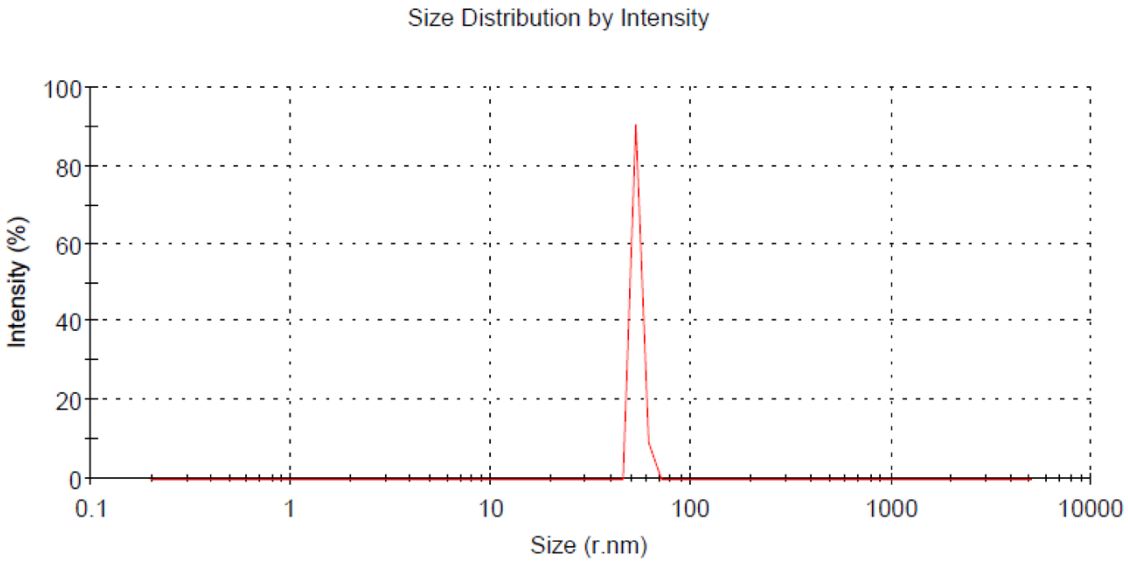
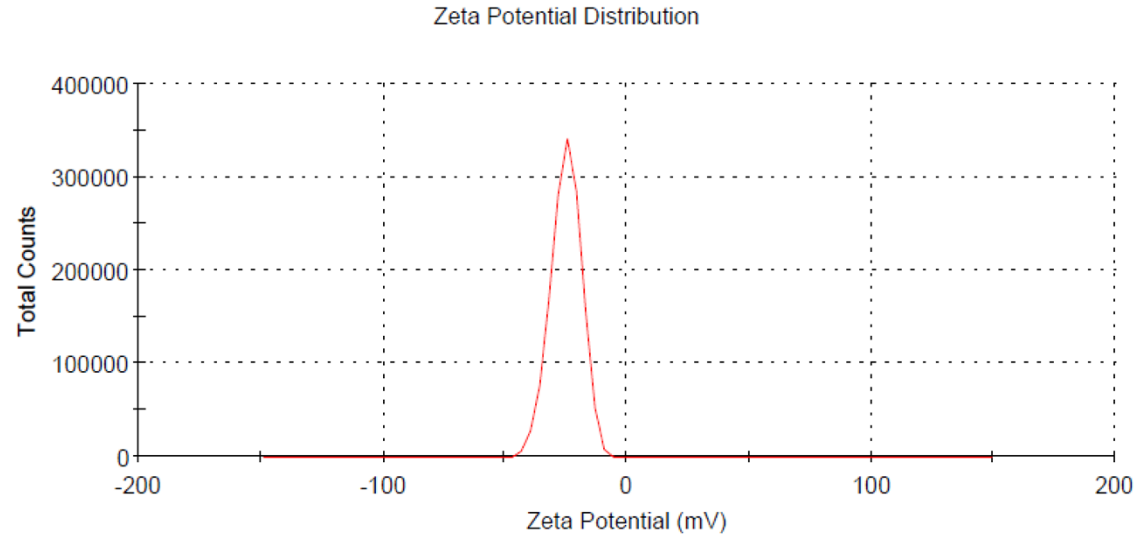


Fig. S1 XRD recorded for CeNPs (a) and NH_2-CeNPs (b).



			Diam. (nm)	% Intensity	Width (nm)
Z-Average (r.nm):	1085	**Peak 1:**	53,64	100,0	2,435
PdI:	1,000	**Peak 2:**	0,000	0,0	0,000
Intercept:	1,32	**Peak 3:**	0,000	0,0	0,000

Fig. S2 Dynamic laser scattering experiment showing the particle size distribution of an aqueous suspension of RhB-CeNPs.



			Mean (mV)	Area (%)	Width (mV)
Zeta Potential (mV):	-25,0	**Peak 1:**	-24,9	100,0	6,17
Zeta Deviation (mV):	5,84	**Peak 2:**	0,00	0,0	0,00
Conductivity (mS/cm):	0,0246	**Peak 3:**	0,00	0,0	0,00

Fig. S3 Dynamic laser scattering experiment showing the zeta potential of RhB-CeNPs in aqueous medium.

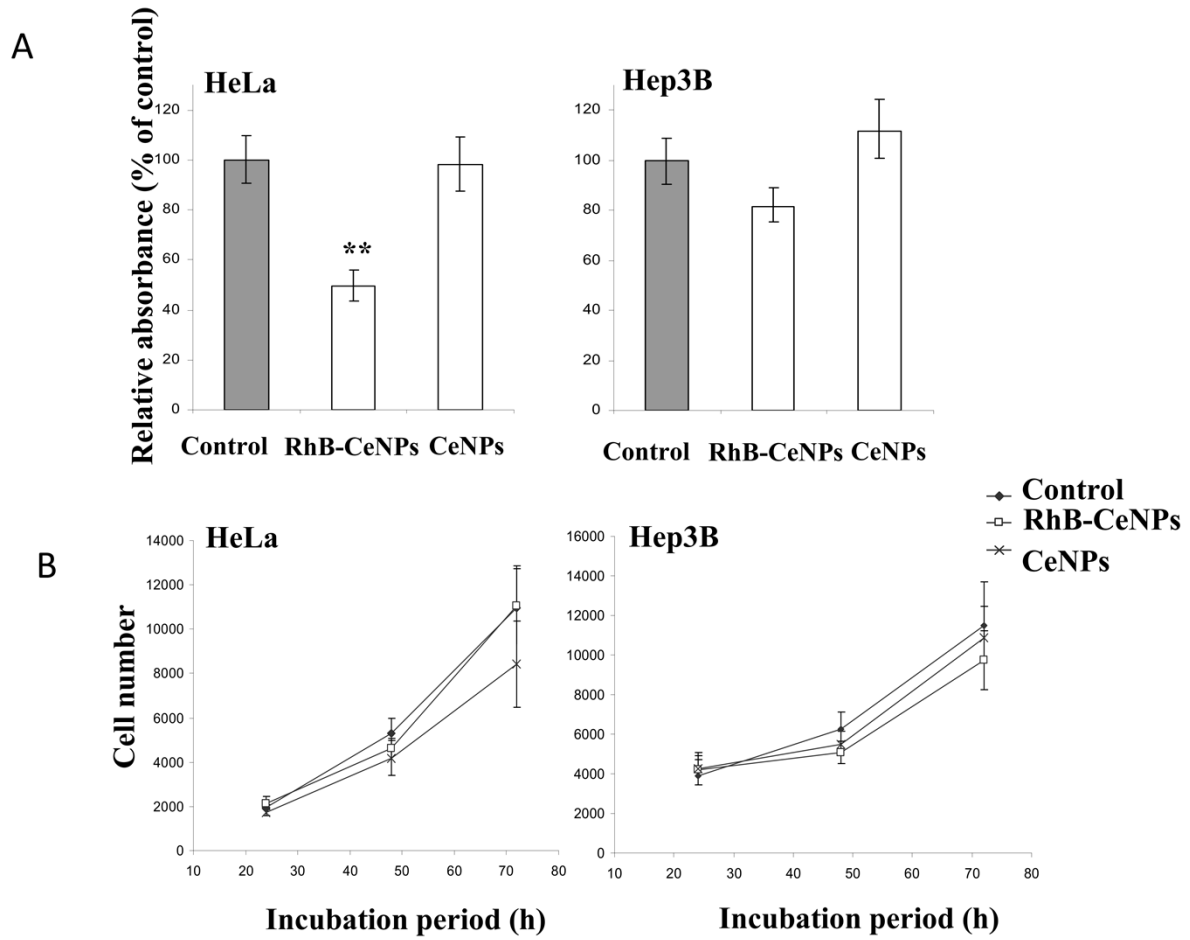


Fig. S4 Determination of cellular viability and proliferation. A) Cell viability detected by the MTT assay in exponentially proliferating HeLa and Hep3B cells exposed to the nanoparticles for 3h followed by 21h recovery. Data (mean ± SEM, n=4) were analyzed by Student´s t-test, significance vs control (untreated cells) * $p<0.05$. B. B) Cell survival and proliferation in exponentially proliferating HeLa and Hep3B cells exposed to the nanoparticles for 3h followed by an incubation period to a total of 3 days. Cell count was performed at 24, 48 and 72h. Data represented as mean ± SEM, n=3.

Figure S5 A

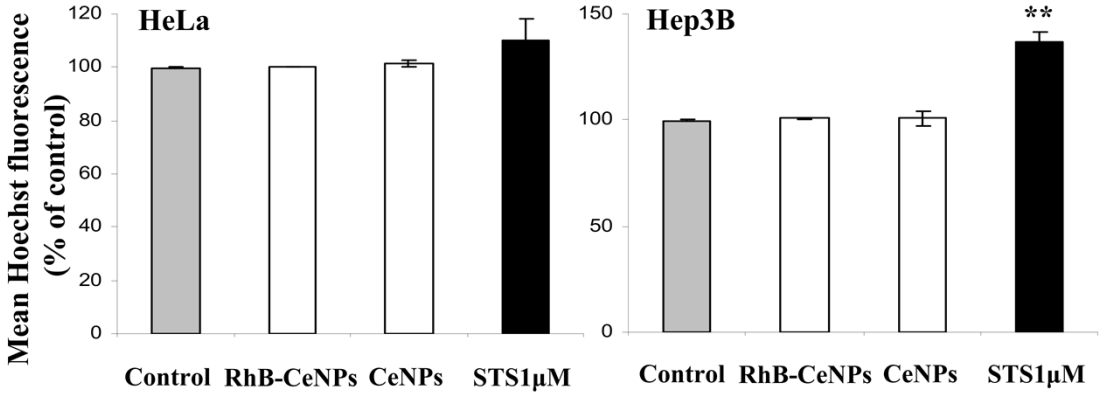


Figure S5 B

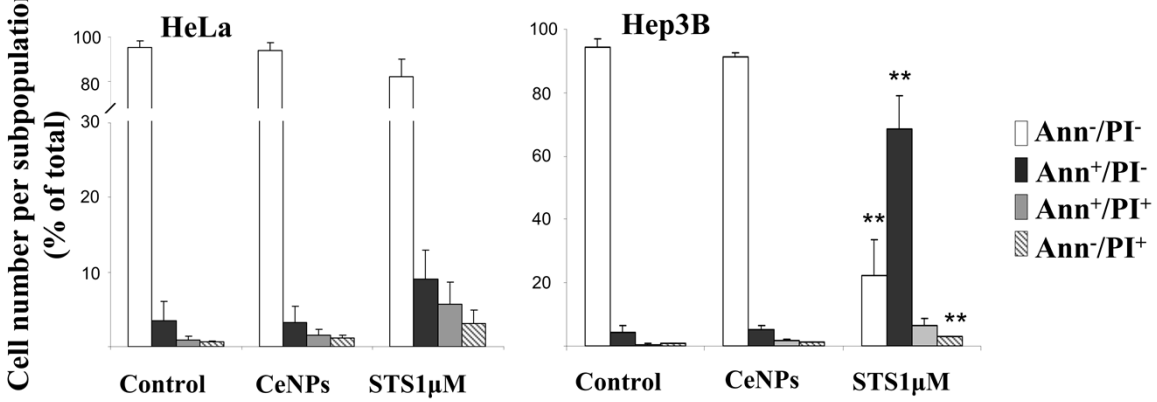
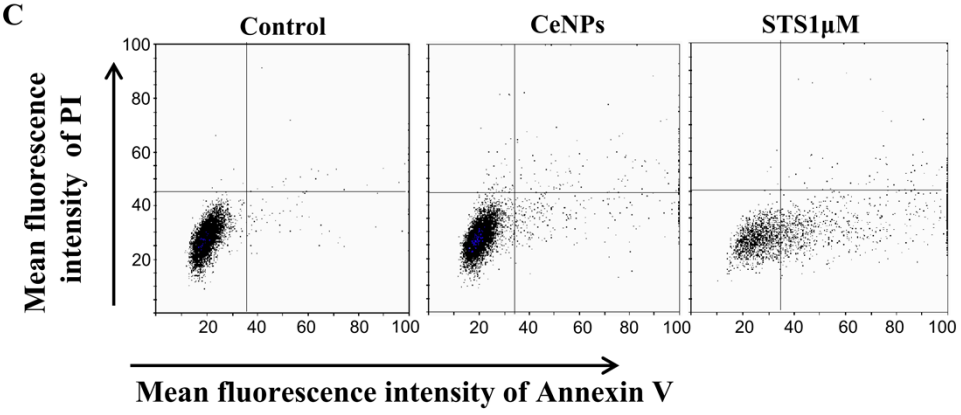


Figure S5 C



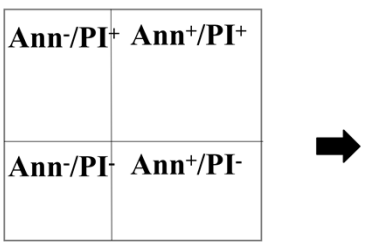


Fig. S5 Assessment of the presence of apoptosis. HeLa and Hep3B cells were exposed to the nanoparticles for 3h and cell death was evaluated after 21h-recovery using 24h-treatment with

staurosporine (STS) as a positive control. A) Bar chart of the mean Hoechst 33342 fluorescence indicative of nuclear morphological changes. Data (mean ± SEM, n=3) were analyzed by Student´s t-test, significance vs control (untreated cells) ** $p<0.01$. B) Summary bar charts of the Bivariate Annexin V/PI analysis. Data (mean ± SEM, n=3) were analyzed by Student´s t-test, significance vs control (untreated cells) ** $p<0.01$. C) Representative cytograms obtained with Hep3B cells and a table showing the percentage of each of the 4 sub-populations: vital cells (Annexin V-/PI-), early apoptotic or classically apoptotic (Annexin V+/PI-), late apoptotic/necrotic (Annexin V+/PI+), and damaged or classically necrotic cells (Annexin V-/PI+).