

Integrating Green Chemistry into SPION Development: A Theranostic Study on Prostate Cell Models

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Supplementary Materials

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Table S1 - Content of Fe, Au and Gd in the SPIONs, measured by PIXE

Sample	Fe (%)	Au (%)	Gd (%)	Ratio [Fe:Gd]
SP	89.2±0.1	-	-	-
SP-Dx-Au	42.2±0.3	14.3±0.3	-	3.0:1
SP-Dx-Au-Gd	34.4±0.2	15.9±0.4	3.7±0.2	2.2:1
SP-LV-Au3	18.7±0.4	39.8±0.9	-	1:2.1
SP-LV-Au3-Gd	16.6±0.2	26.3±0.5	4.1±0.1	1:1.6
SP-LV-Au1	30.8±0.7	9.2±0.5	-	3.3:1
SP-LV-Au1-Gd	36.2±0.3	8.2±0.1	22.8±0.6	4.4:1

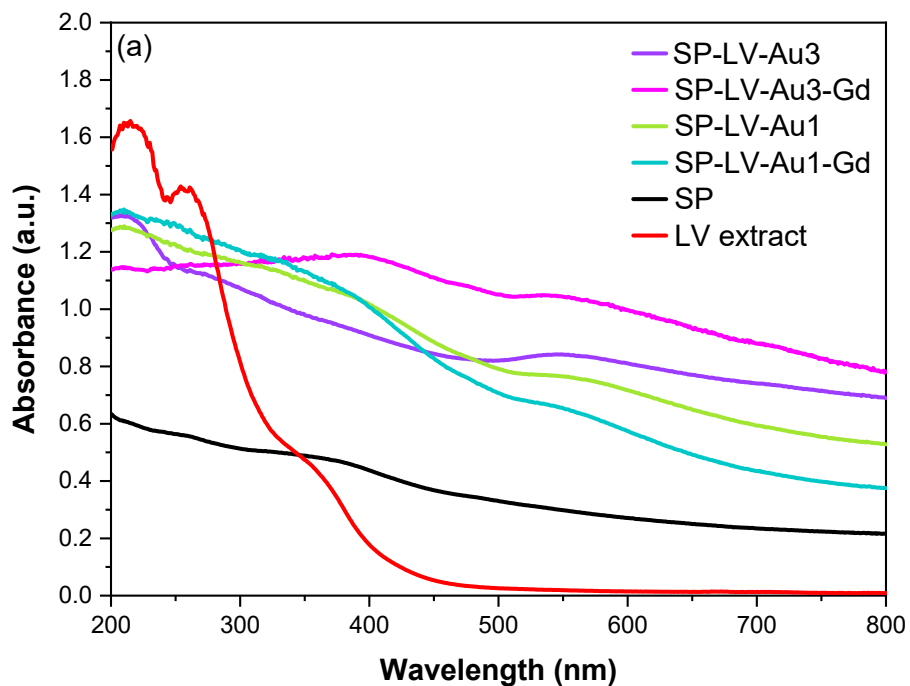


Figure S1 - UV-vis spectra of nanoplateforms leaf extract SPLV, in Milli-Q water

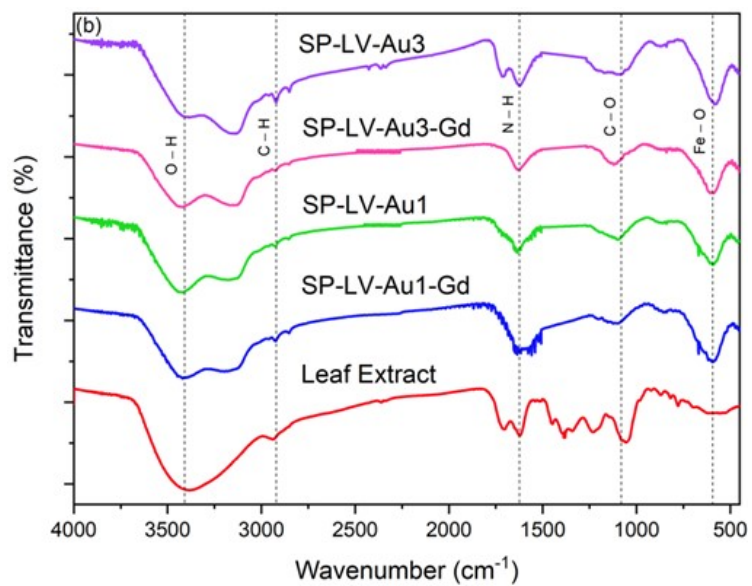


Figure S2- FTIR spectra for both routes of multifunctional nanoplateforms leaf extract SPLV

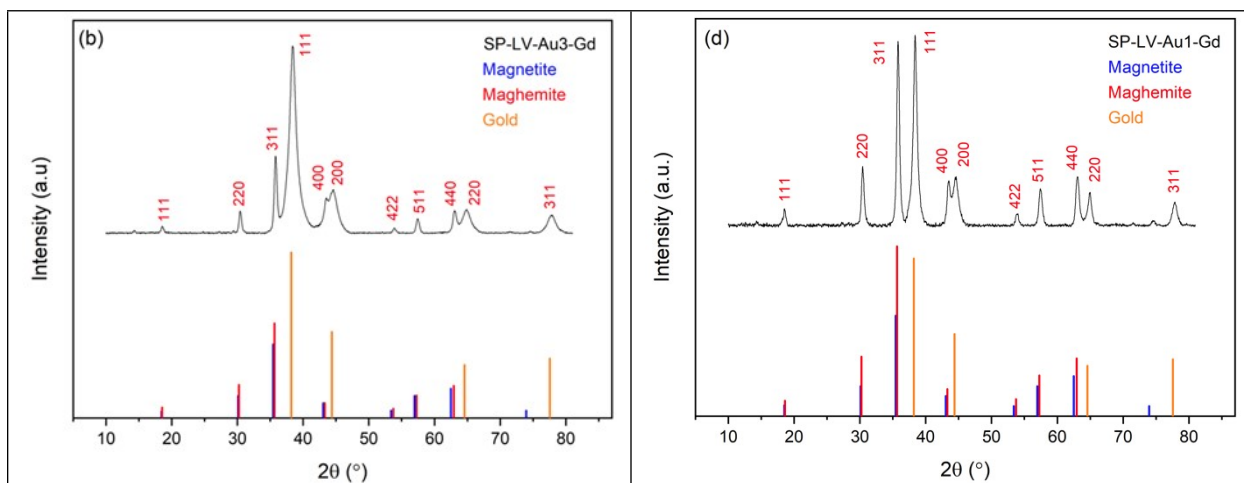


Figure S3 - Powder X-Ray diffraction patterns of (b) SP-LV-Au3-Gd and (d) SP-LV-Au1-Gd.

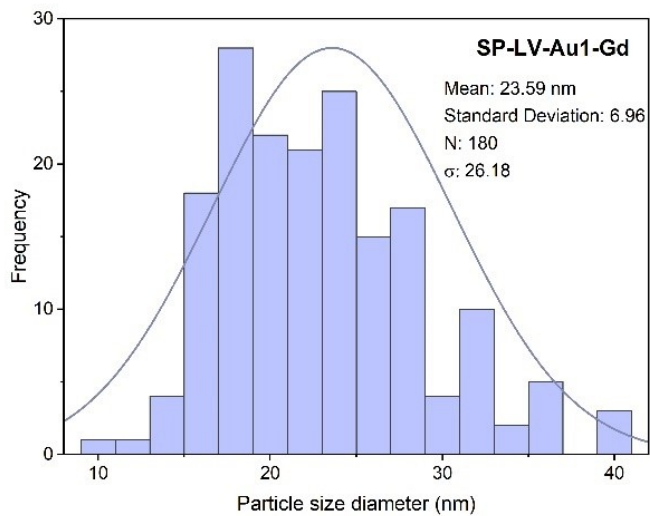
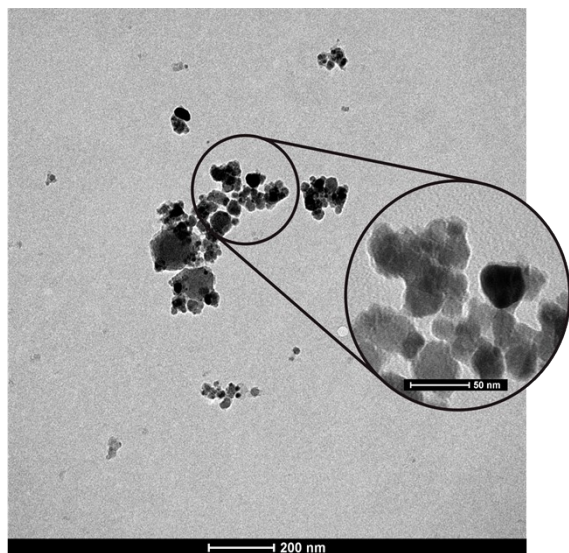
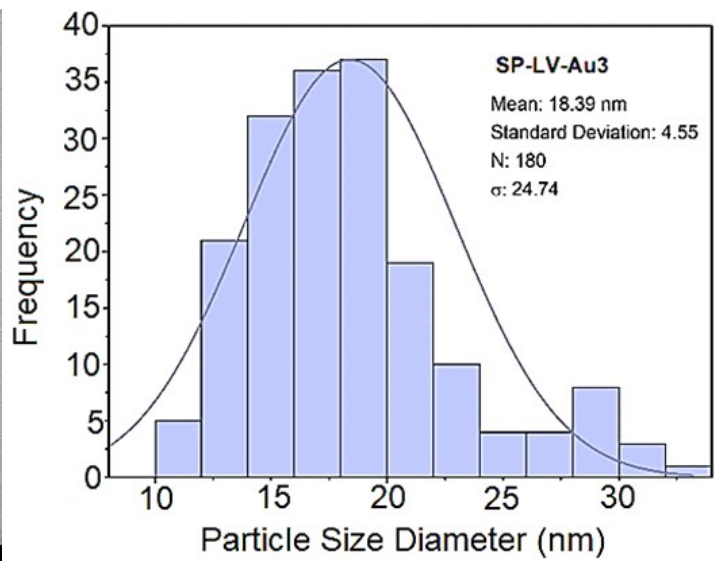
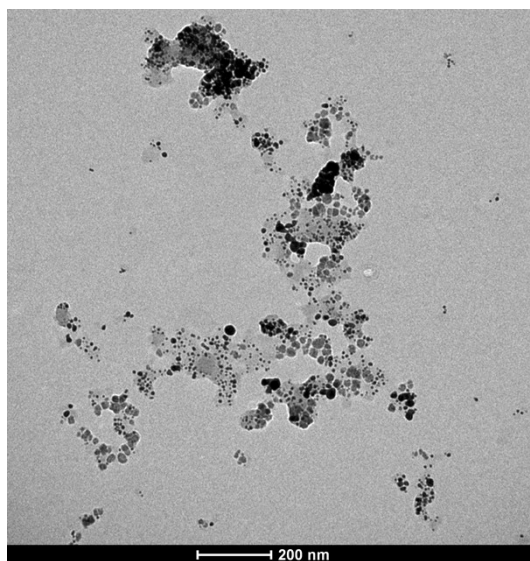


Figure S4- Transmission electron microscopy images of (Up) SP-LV-Au3-Gd and (down) SP-LV-Au1-Gd, and respective histogram.

Einstein Equation

$$D = \frac{k_B T}{6\pi\eta\alpha}$$

where k_B is the Boltzmann constant, T is the temperature, η denotes the viscosity of the solvent, which is water in our case ($\eta = 8.9 \times 10^{-4}$ Pa s), and α is the radius of the solute.

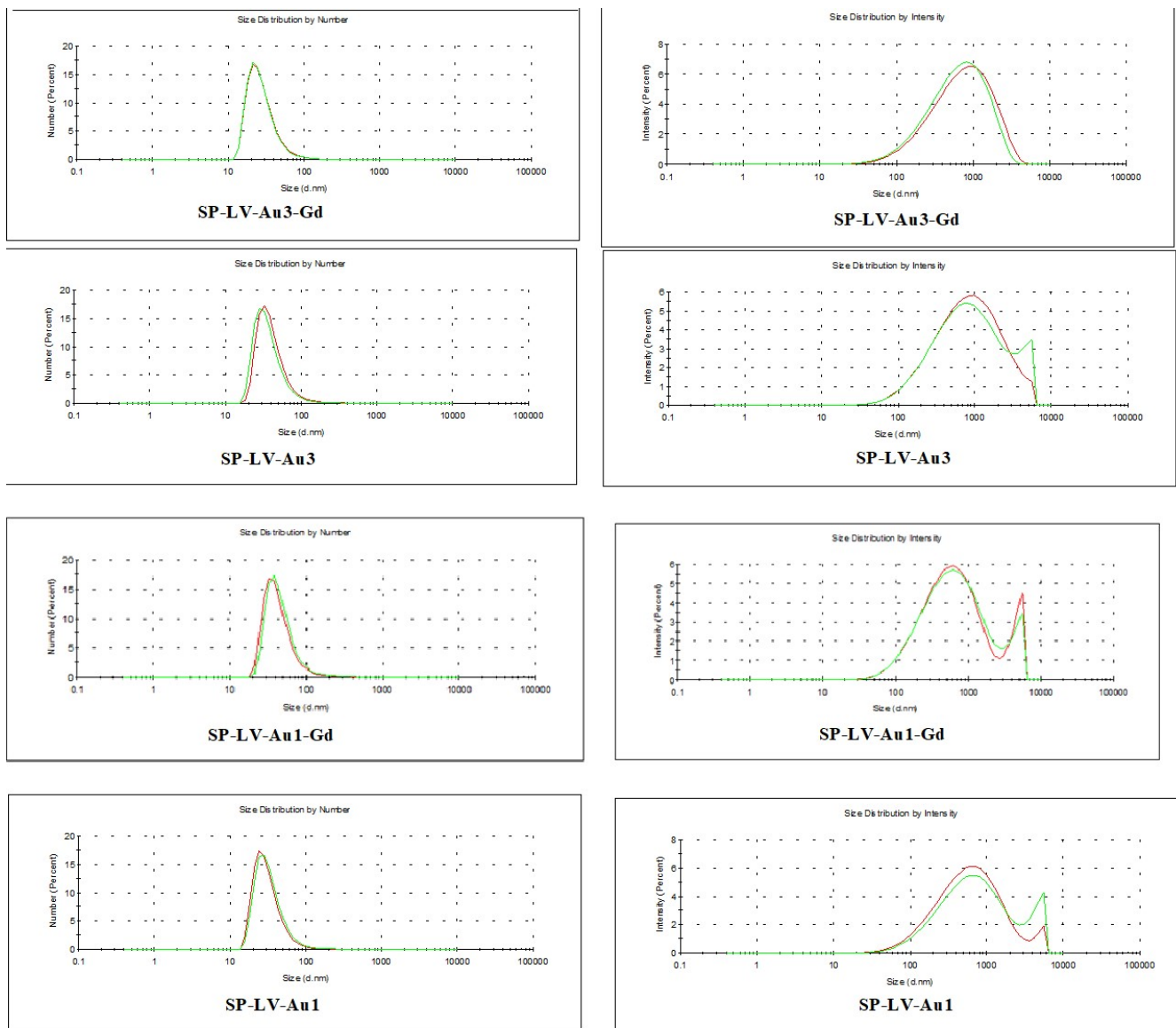


Figure S5 - Histograms of the size distribution by number of LV samples by DLS analysis.

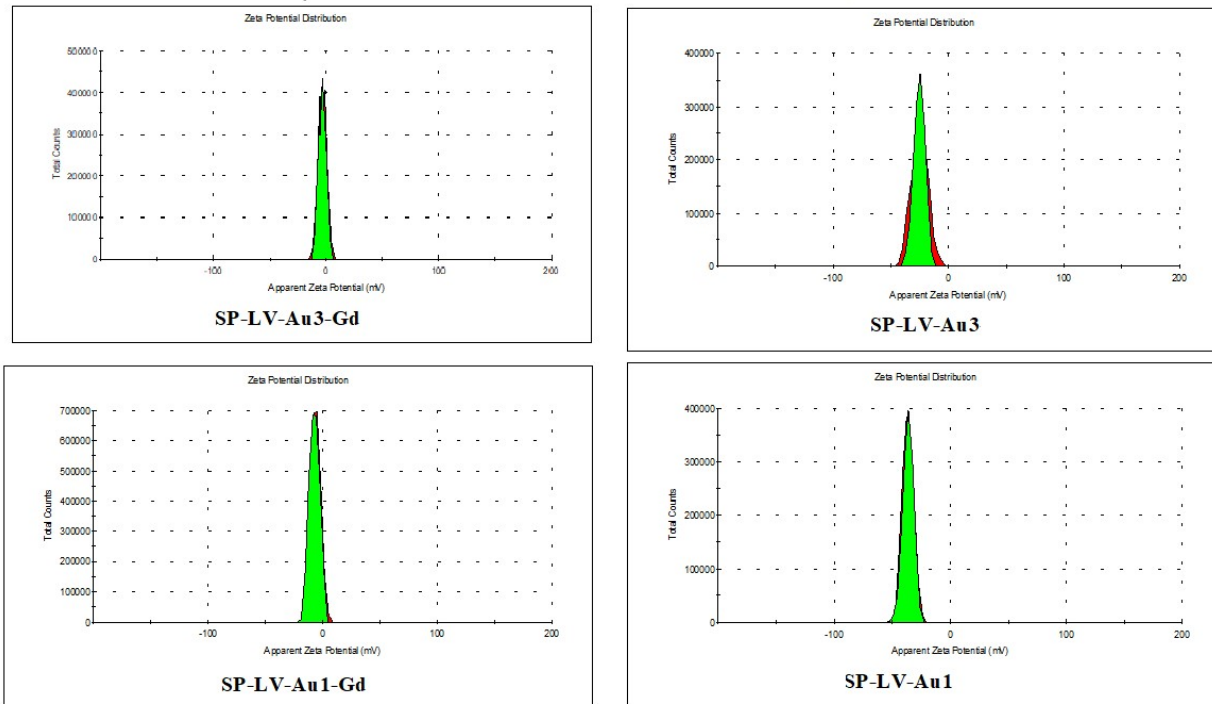


Figure S6 - Histograms of the Zeta Potential distribution samples by DLS analysis

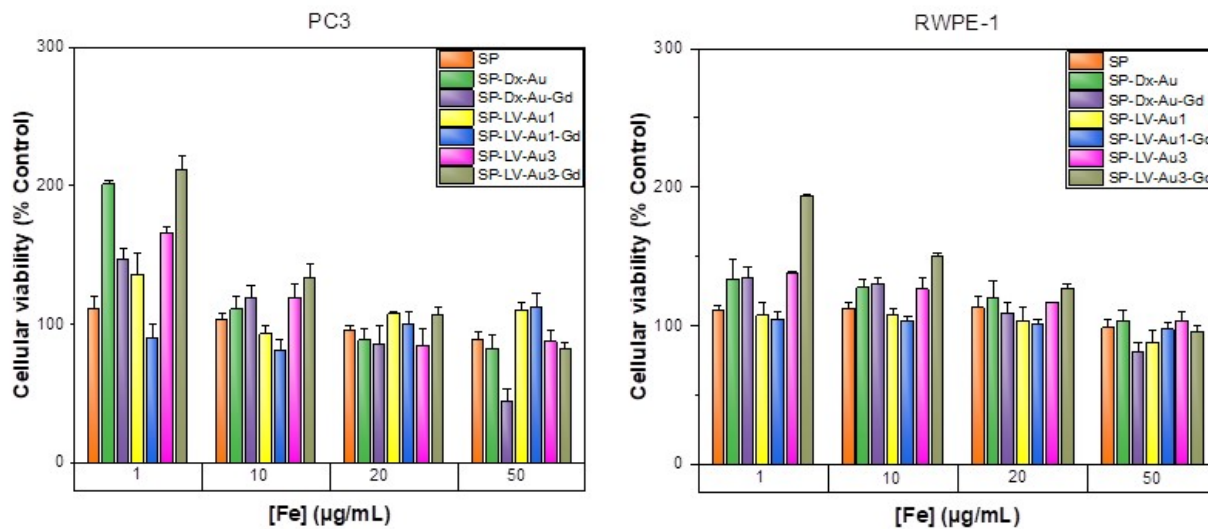


Figure S7 Selection of the appropriate concentrations for the irradiation studies

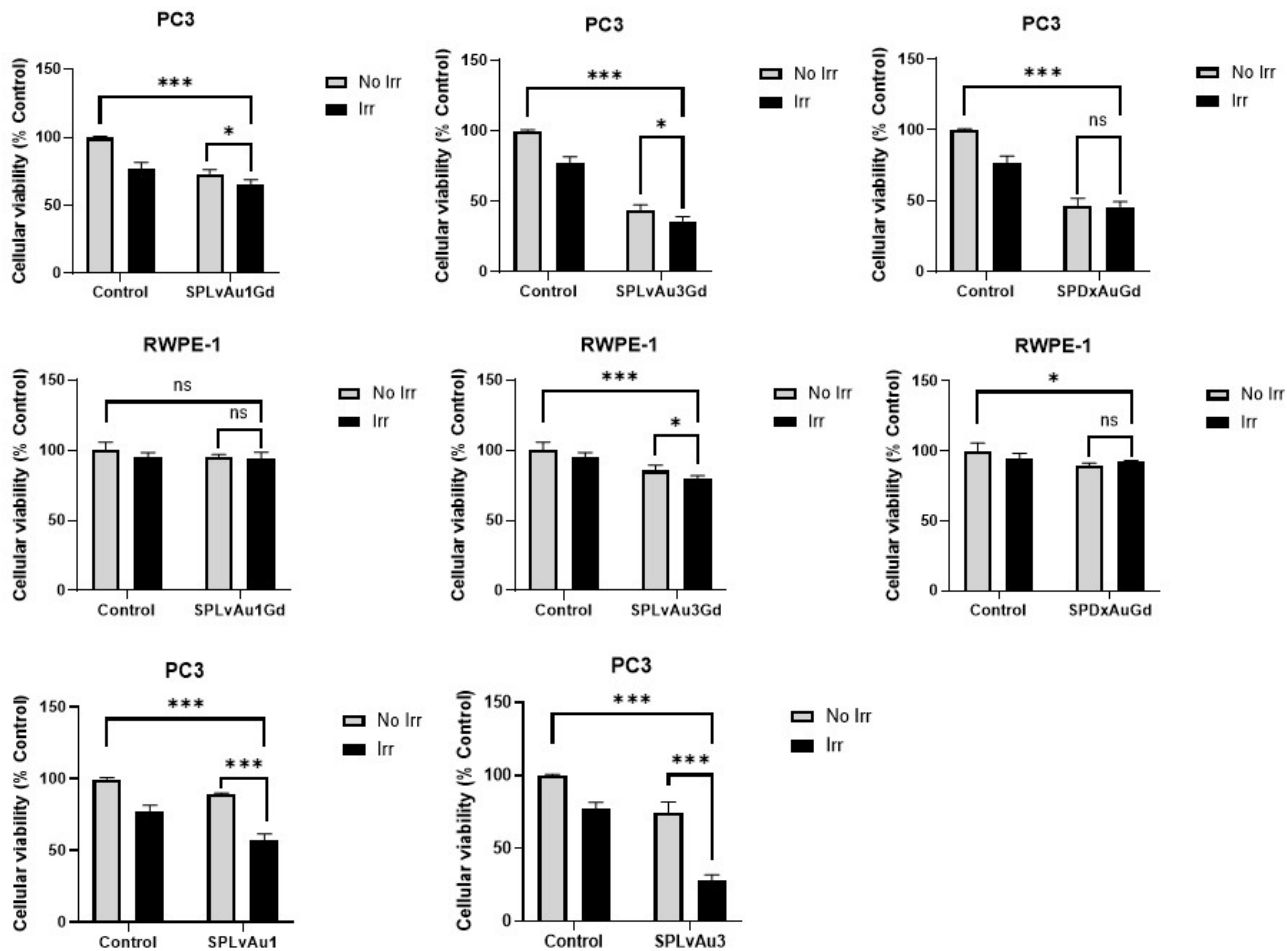


Figure S8. Cellular viability of PC3 and RWPE-1 cells treated with each nanoplateform at 20 µg (Fe)/mL and non-treated (controls) with/without γ -rays (^{60}Co , 2 Gy) irradiation and after 72 h post-irradiation using the MTT assay. Results are expressed as mean \pm SD (n = 4). T-test APA as the mean \pm SD (n=4) with statistical significance represented as: P<0.12; ns; P<0.033; *; P<0.002; **, P<0.001. ***