

## Supporting information

# Regulating Cell Apoptosis on Layer-by-Layer Assembled Multilayers of Photosensitizer-Coupled Polypeptides and Gold Nanoparticles

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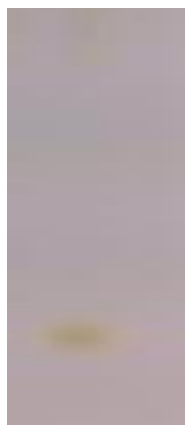
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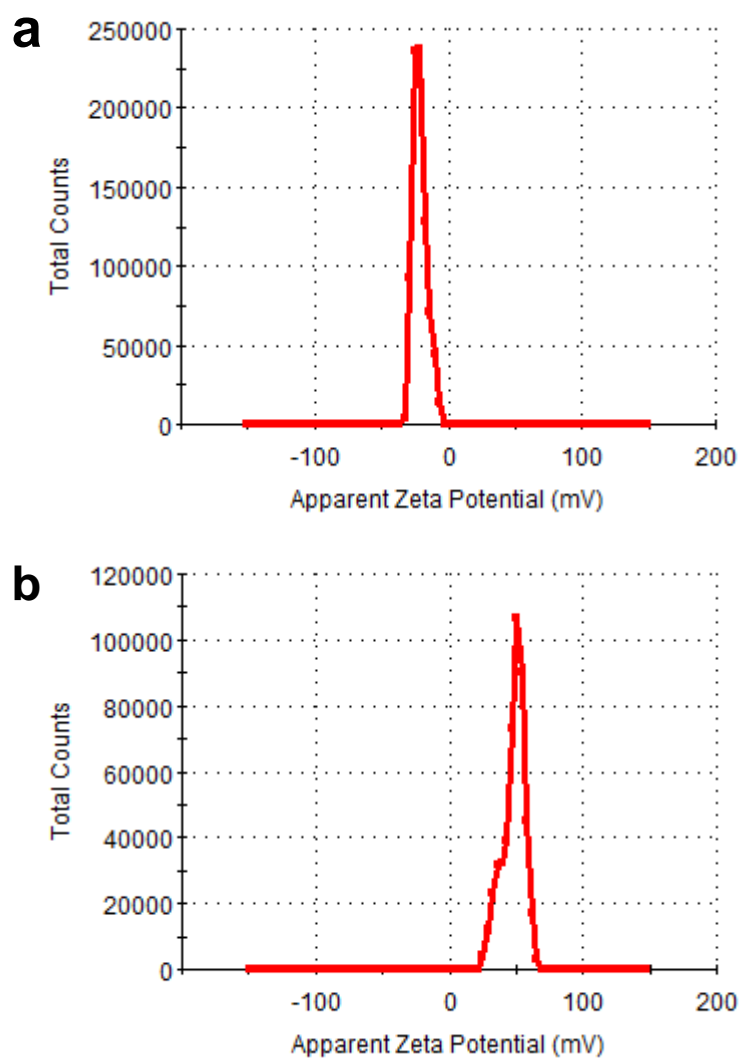
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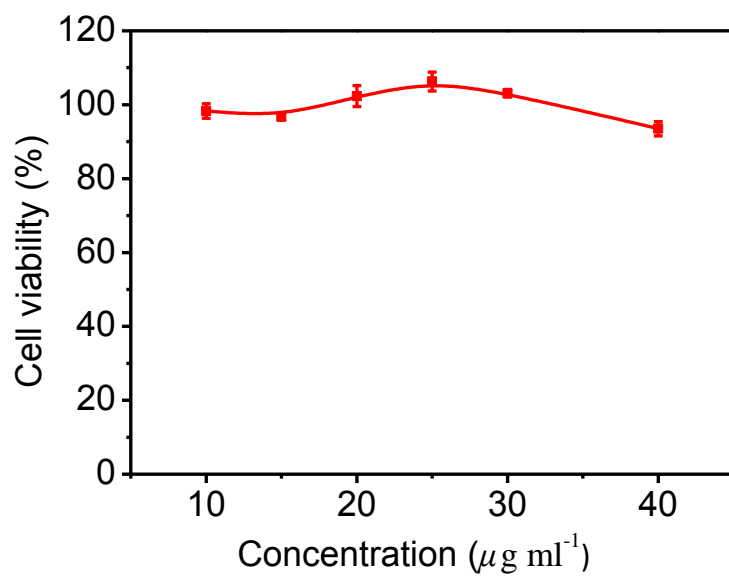
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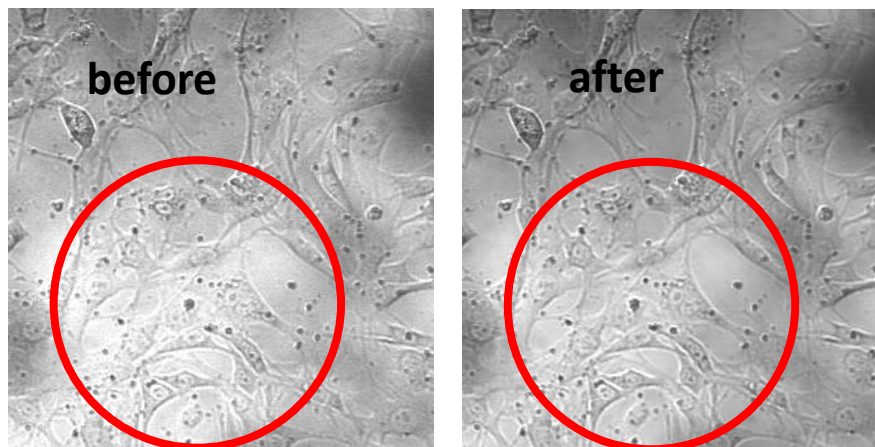
**Figure S1.** Thin layer chromatography (TLC) of PLL-TPPAc.



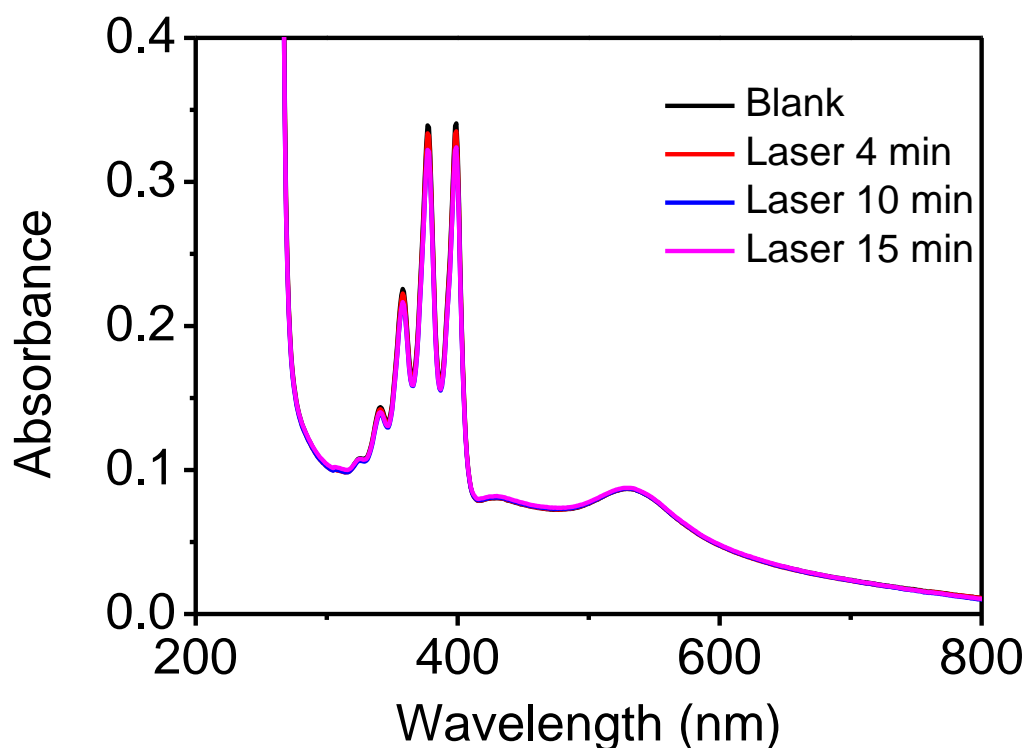
**Figure S2.** Zeta potential of Collagen-conjugated AuNPs (a) and PLL-TPPAc (b).



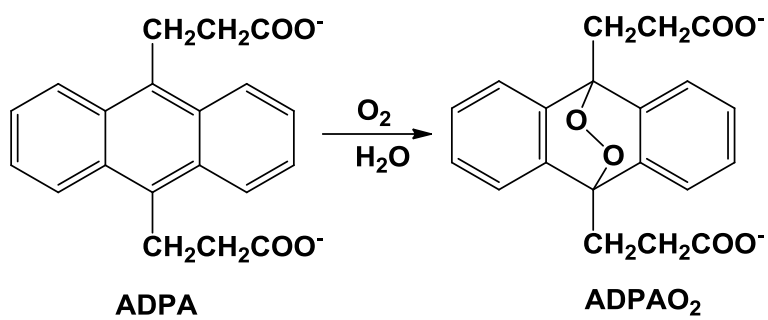
**Figure S3.** Cell viability measurements carried out by using the MTT assay of 3T3 fibroblasts after 24 h incubation in the presence of different concentrations of collagen-conjugated AuNPs.



**Figure S4.** Confocal microscope images of the cells which grow on the (gold-collagen nanoconjugates/PLL)<sub>5</sub> LBL film before and after laser irradiation. (laser: 559 nm, 10 min, light intensity of 40%, 4.0  $\mu$ s/Pixel)



**Figure S5.** UV-Vis absorption spectra of ADPA in the AuNPs-based film irradiated for 0, 4, 10 and 15 min, showing negligible changes in the intensity, indicating no ROS yielding by the collagen-conjugated AuNPs. Note: The peaks at 377.5 nm, 358 nm and 398.5 nm are the characteristic absorbance of ADPA.



**Figure S6.** Reaction of ADPA with  $^1\text{O}_2$  to form the endoperoxide ADPAO<sub>2</sub>.