Supporting Information

Promoting gene transfection by ROS responsive silicon nanowire arrays

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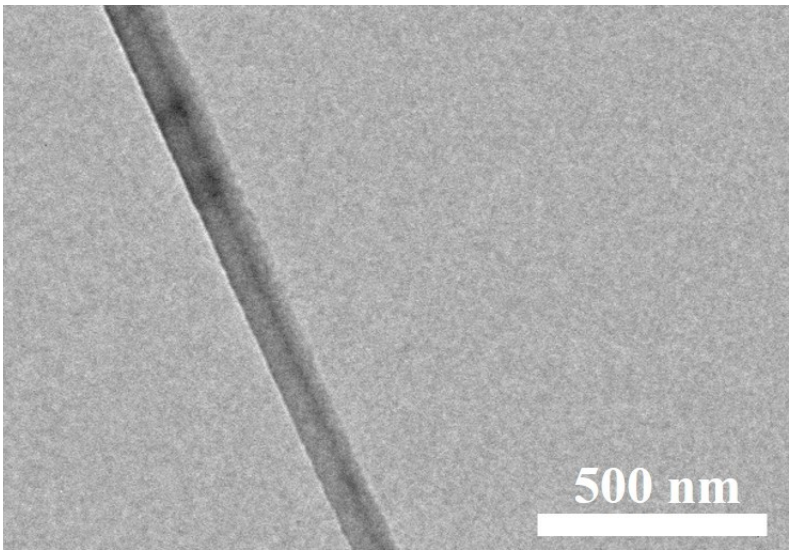

Fig. S1 TEM image of single silicon nanowire.

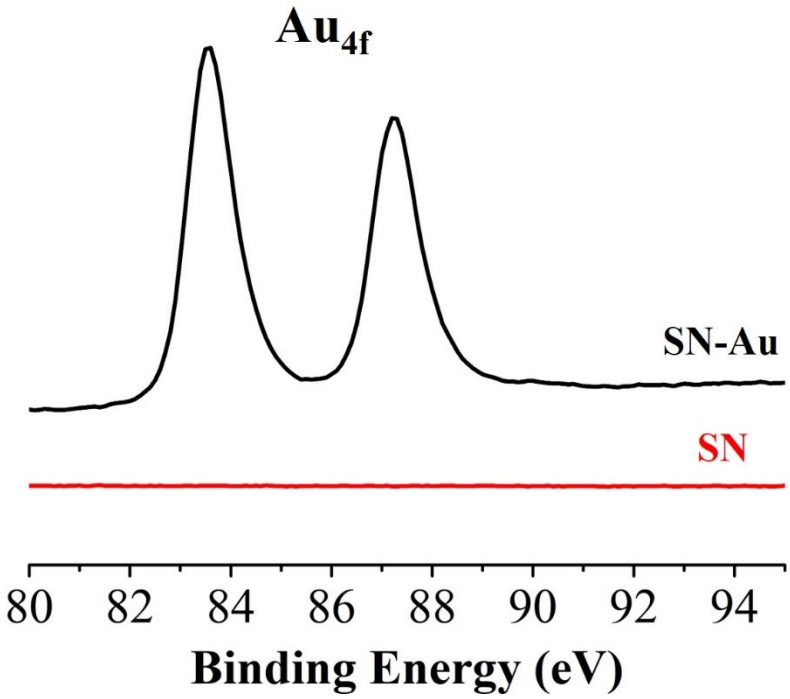

Fig. S2 High-resolution XPS spectra of the Au elements appearing on the surface of SN-Au.

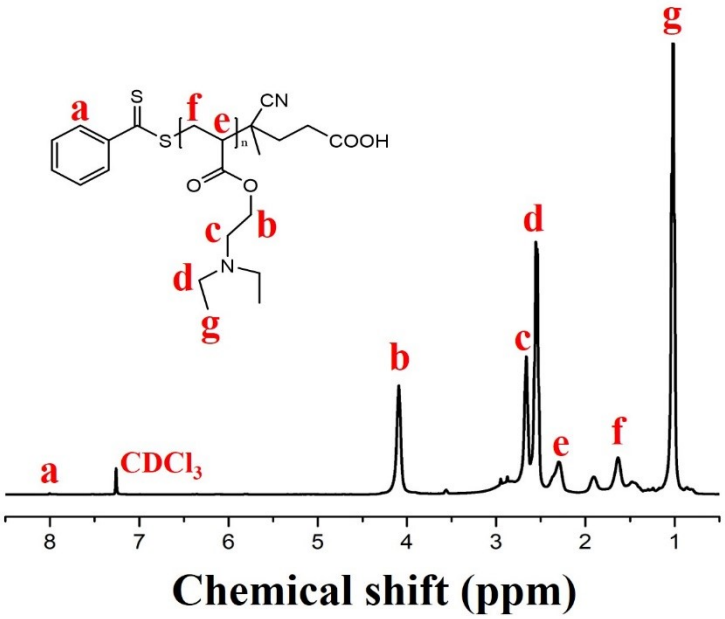

Fig. S3 ^{1}H-NMR spectrum of PDEAEA.

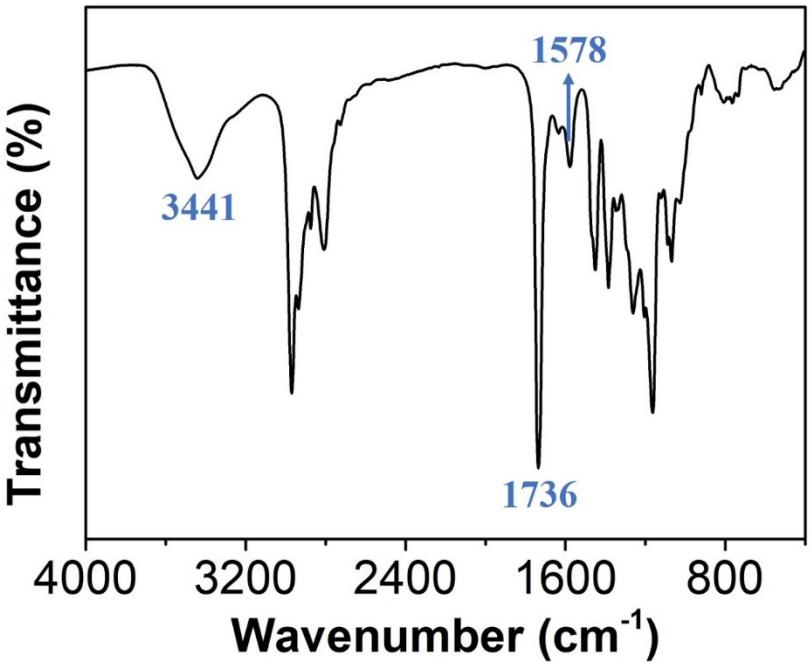

Fig. S4 FT-IR spectrum of PDEAEA.

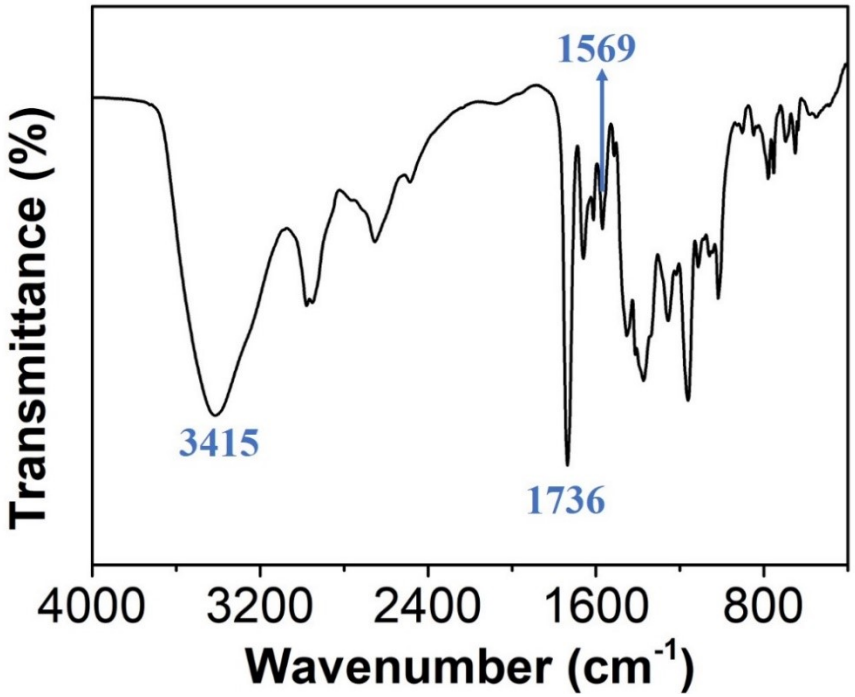

Fig. S5 FT-IR spectrum of B-PDEAEA.

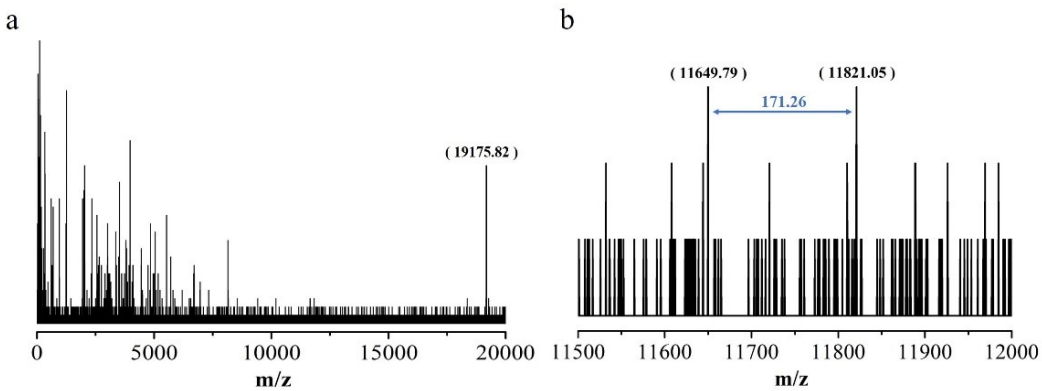

Fig. S6 (a) Mass spectra of PDEAEA and (b) partial mass spectra.

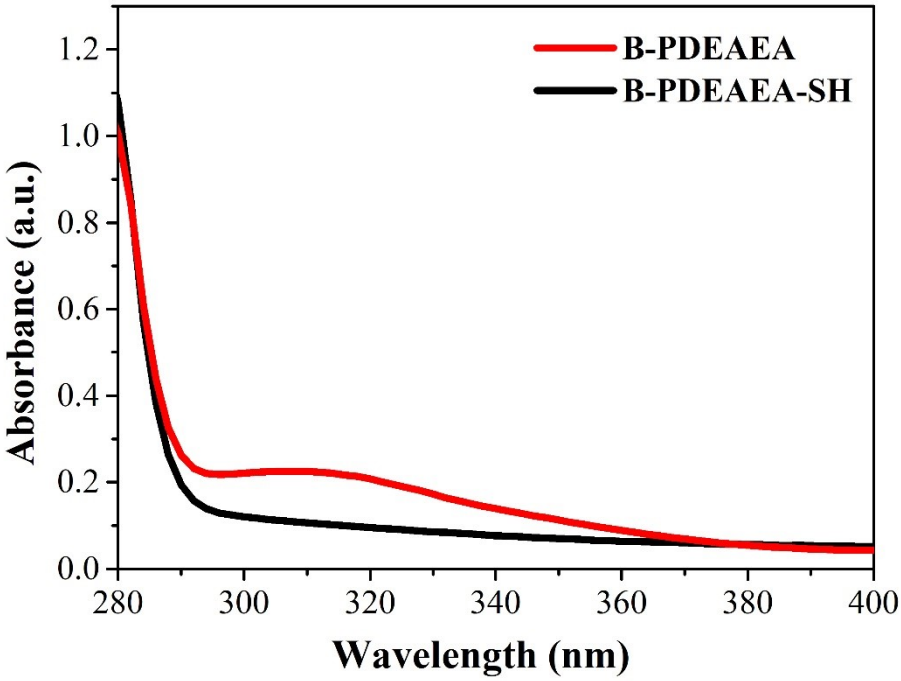

Fig. S7 UV-Vis absorbance of B-PDEAEA/ B-PDEAEA-SH.

Table S1. Elemental composition from XPS of SN surfaces at different stages of modification.

	Elemental composition (%)				
	Si	Au	C	N	O
SN	39.5	N. D.	19.7	0.8	40.0
H-SN	64.2	N. D.	24.4	N. D.	11.4
SN-Au-P	16.4	2.6	46.6	6.3	28.1

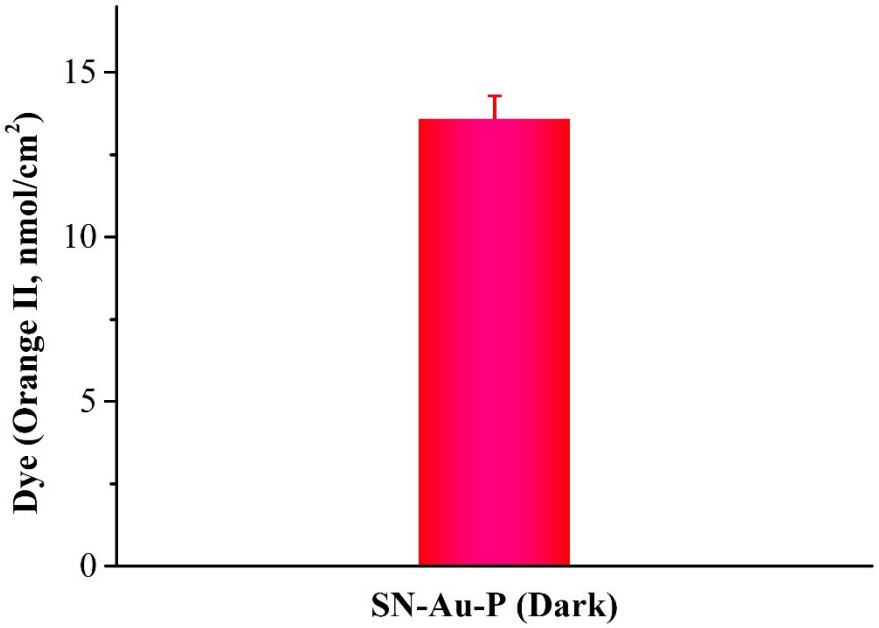

Fig. S8 The amount of Orange II dye bound to SN-Au-P surface.

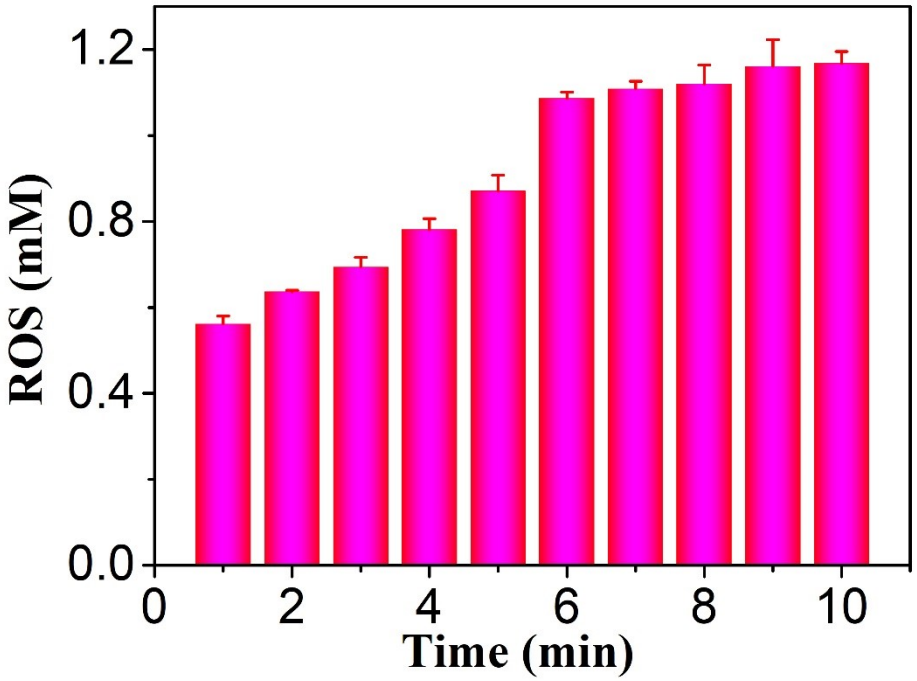

Fig. S9 The photocatalytic properties of SN-Au.

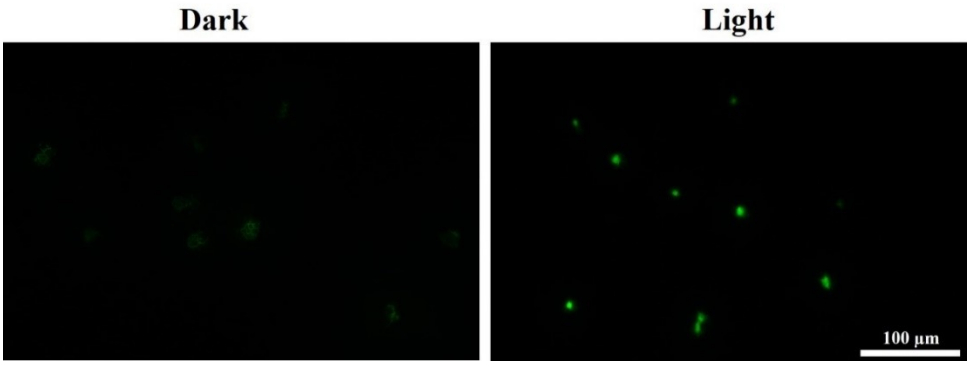

Fig. S10 DCF of Hela cells on SN-Au-P under dark or light treatment.

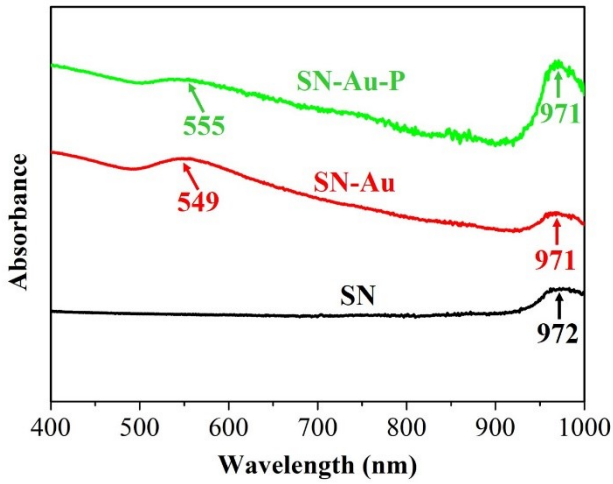

Fig. S11 Absorption spectra of SN, SN-Au and SN-Au-P.

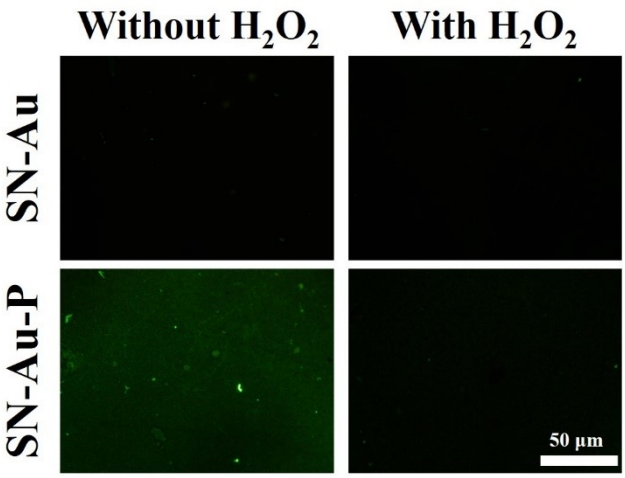

Fig. S12 Fluorescence images of different surfaces with adsorbed FITC-OVA before and after H_2O_2 treatment.

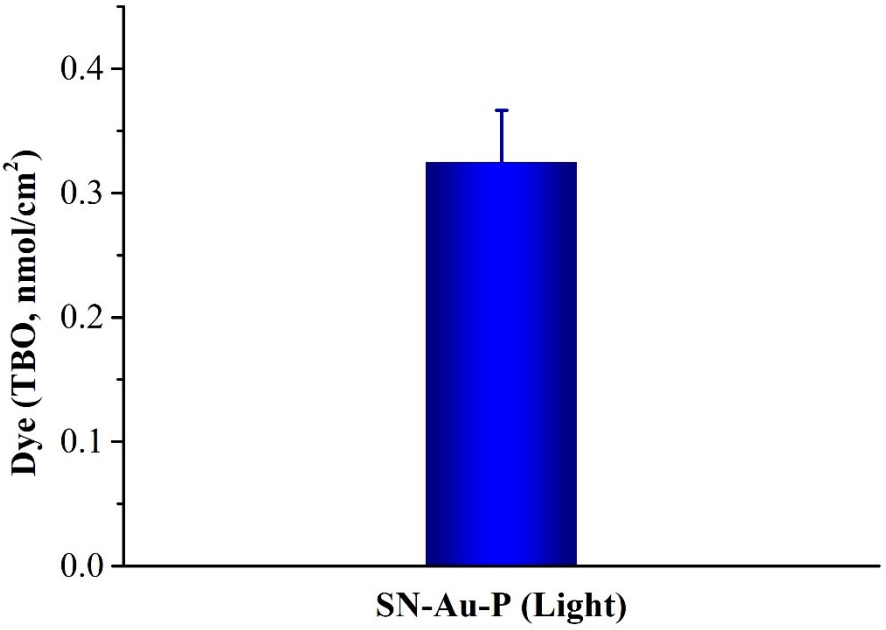

Fig. S13 The amount of TBO dye bound to SN-Au-P surface after light treatment.

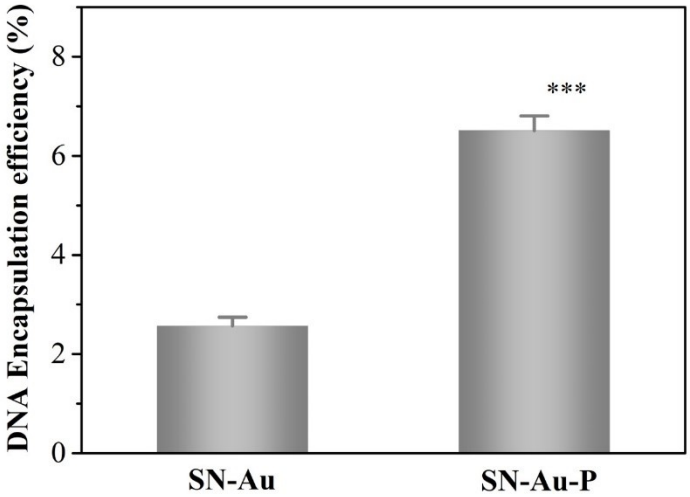

Fig. S14 DNA loading efficiency of SN-Au and SN-Au-P. Data shown as mean ± SD, n = 3 (***p < 0.001, SN-Au was the control group for analysis of significant differences).

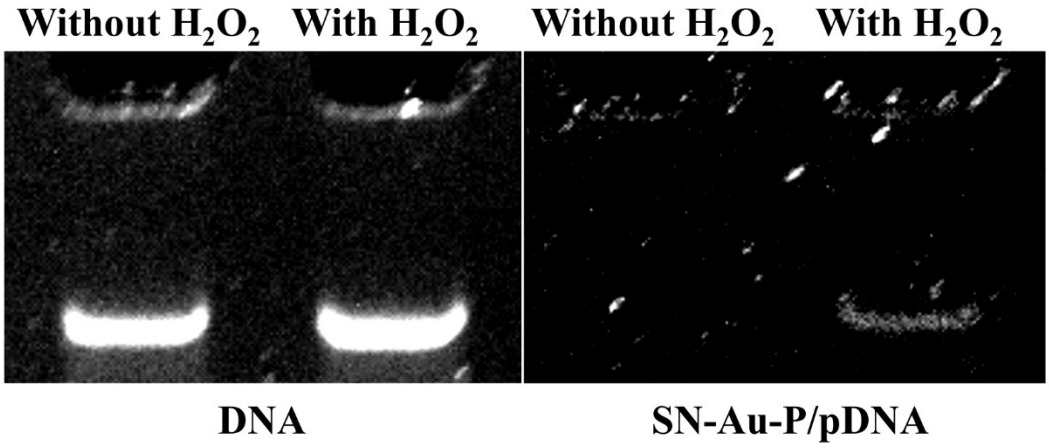

Fig. S15 Agarose gel electrophoresis assay of DNA released from the surface of SN-Au-P before and after H_2O_2 treatment.

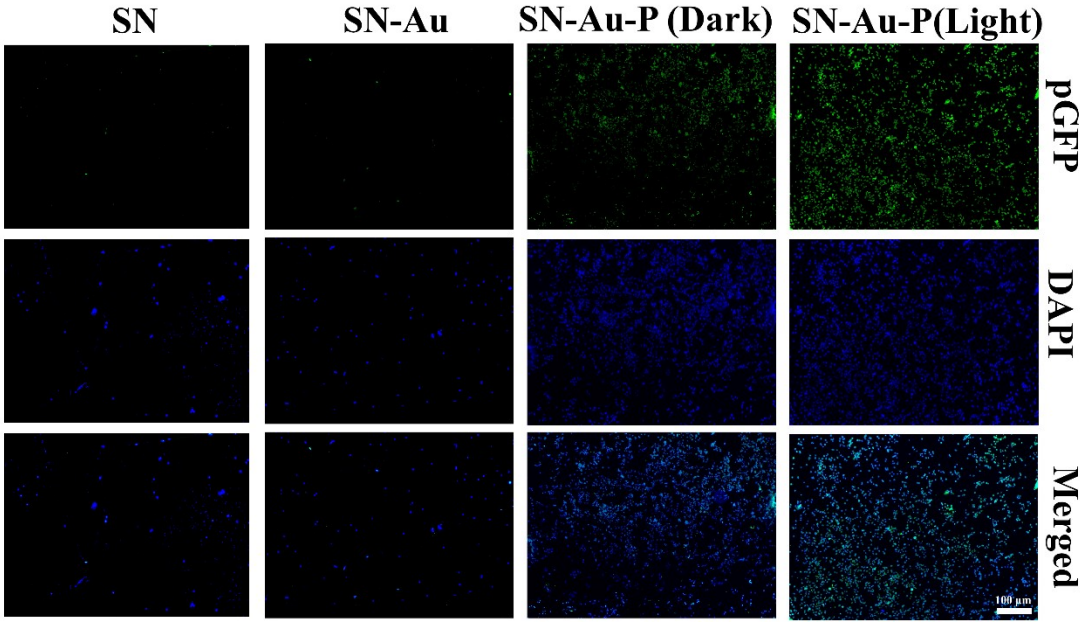

Fig. S16 Low-magnification fluorescence images of HeLa cells.

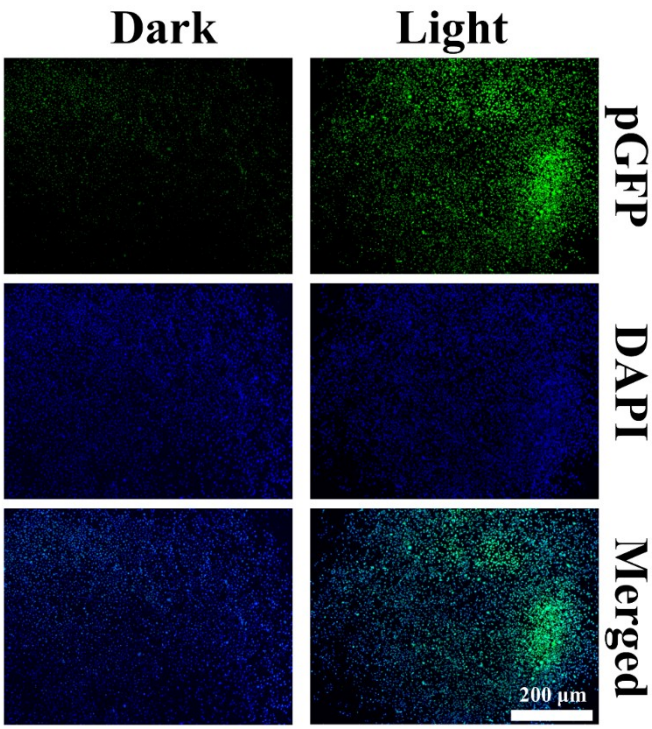

Fig. S17 Low-magnification fluorescence images of L929 cells.

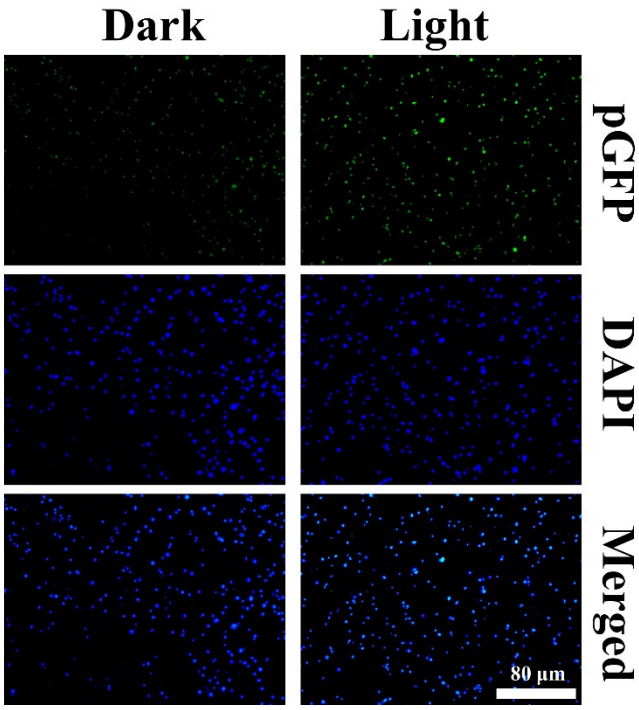

Fig. S18 Low-magnification fluorescence images of BMSC cells.

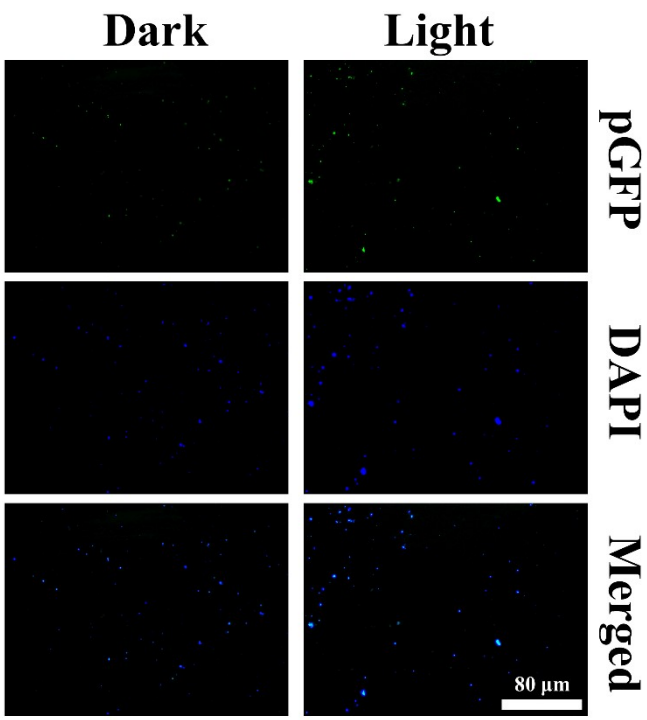

Fig. S19 Low-magnification fluorescence images of mESC cells.

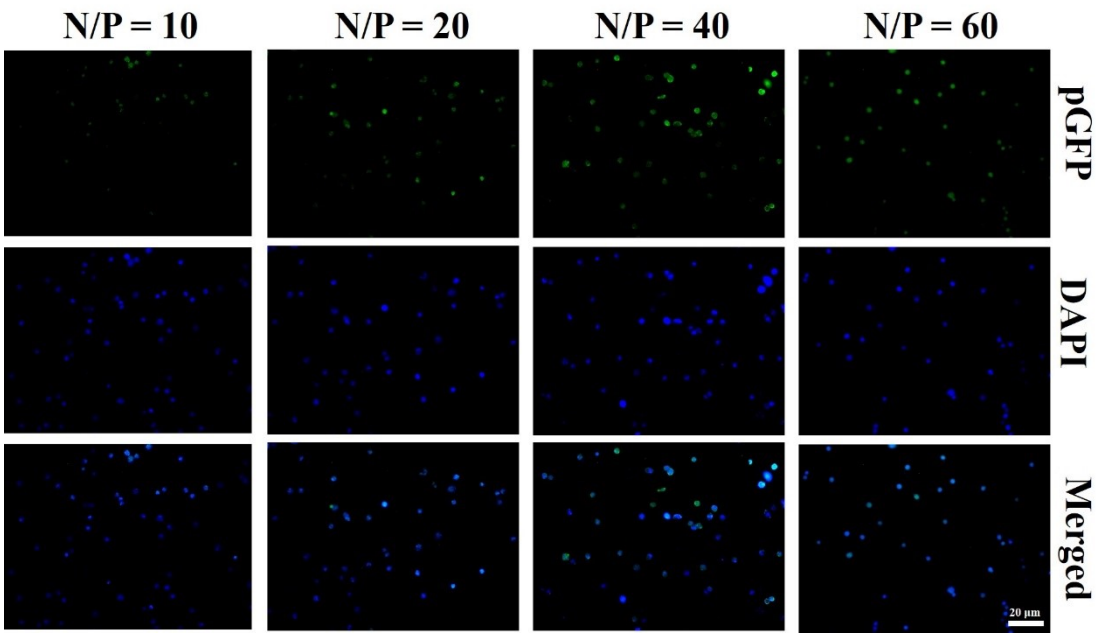

Fig. S20 Fluorescence images of HeLa cells under various N/P ratios.

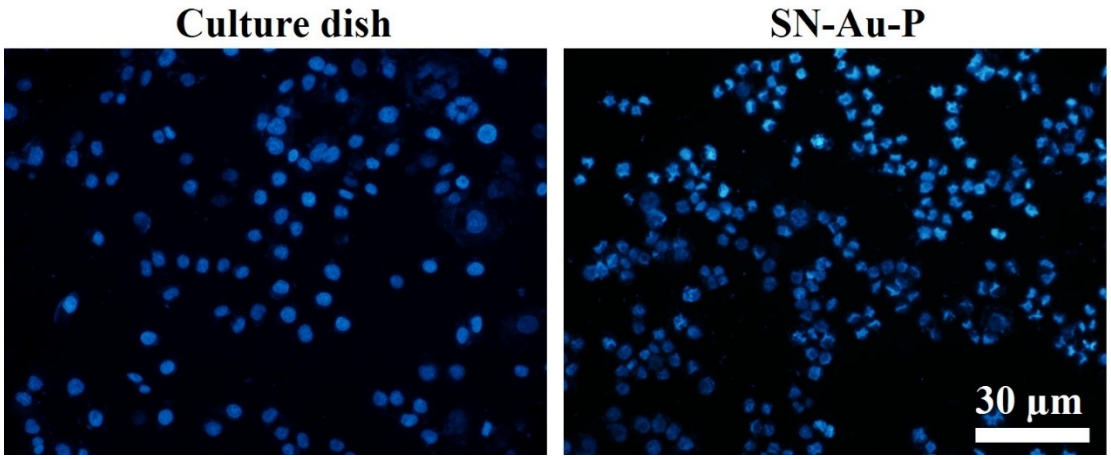

Fig. S21 Cell nucleus on the culture dish and SN-Au-P (the nucleus was stained by DAPI dye).

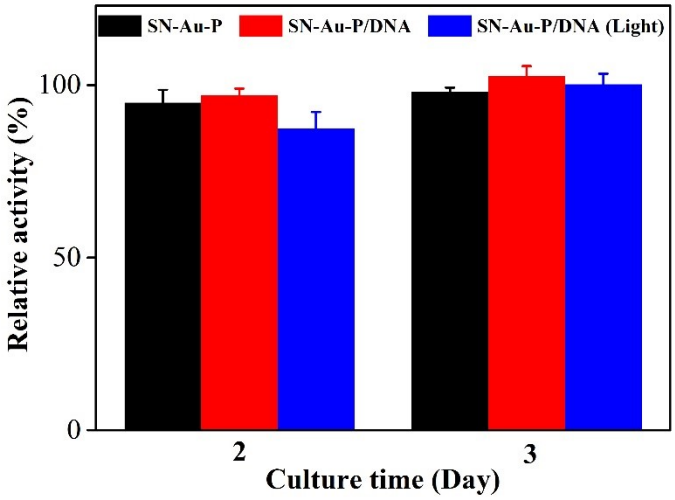

Fig. S22 CCK-8 assay of HeLa cells on different surfaces. The same density of HeLa cells on the surface of SN-Au was used as control. Data shown as mean ± SD, n = 3.

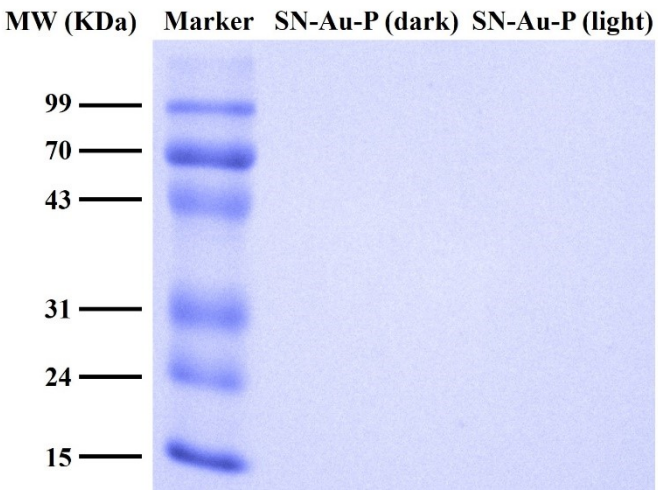

Fig. S23 SDS-PAGE of proteins in the suspension of HeLa cells on SN-Au-P under dark or light treatment.

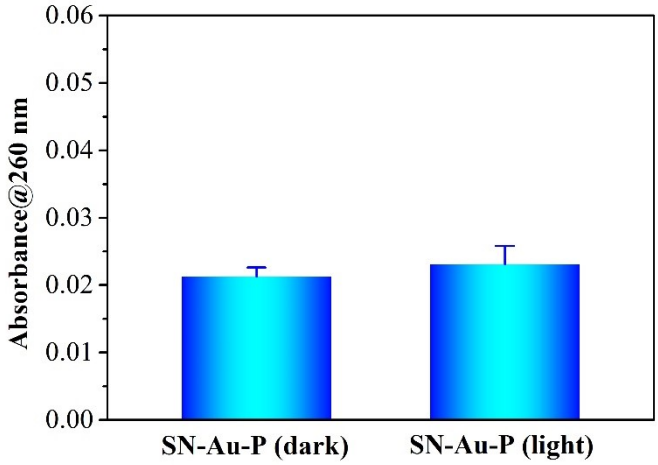

Fig. S24 The ultraviolet absorbance (260 nm) in the suspension of HeLa cells on SN-Au-P under dark or light treatment. Data shown as mean ± SD, n = 3.