Electronic Supplementary Material (ESI) for Analyst.

Fibronectin-coated gold nanostructure composite for electrochemical detection of effects of curcumin-carrying nanoliposomes on human stomach cancer cells

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Supplementary Figures Caption

Supplementary Fig. S1. Optical microscopy images of MKN-28 cells grown on electrode substrates modified by gold deposition in a time-dependent manner: (A) 0 s, (B) 30 s, (C) 60 s, (D) 90 s, and (E) 120 s. (F) FE-SEM characterization of the gold nanostructures–indium tin oxide composite formed after 90 s of gold deposition.

Supplementary Fig. S2. Optical microscopy images of MKN-28 cells grown on gold nanostructures–indium tin oxide composites coated with eight different concentrations of fibronectin, after 3 days *in vitro*: (A) 0 μg/mL or no treatment, (B) 1 μg/mL, (C) 3 μg/mL, (D) 5 μg/mL, (E) 7 μg/mL, (F) 10 μg/mL, (G) 15 μg/mL, and (H) 17 μg/mL.

Supplementary Fig. S3. Optical microscopy images of MKN-28 cells grown on gold nanostructures–indium tin oxide composites coated with five different concentrations of collagen, after 3 days *in vitro*: (A) 0 μg/mL or no treatment, (B) 1 μg/mL, (C) 3 μg/mL, (D) 5 μg/mL, and (E) 7 μg/mL.

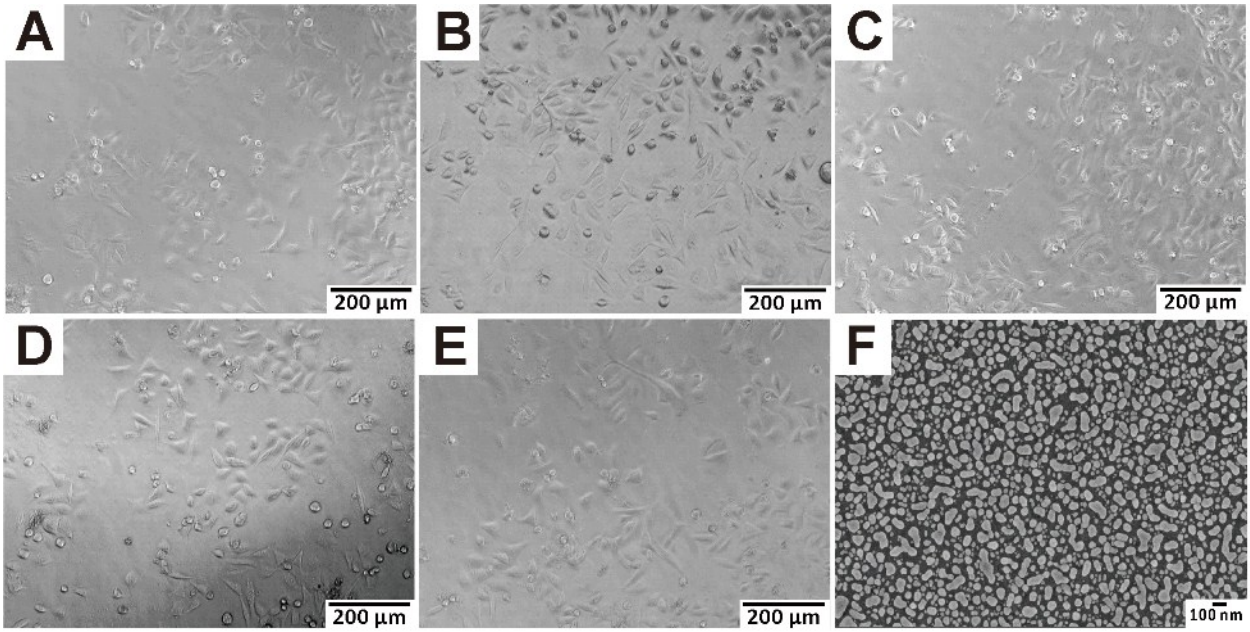
Supplementary Fig. S4. Electrochemical detection results and the amounts of cells on gold nanostructures–indium tin oxide composites coated with five different concentrations of collagen. (A) Differential pulse voltammetric (DPV) signals obtained from MKN-28 cells grown on the modified substrates. (B) Calculated peak intensities from graph (A), presented as a bar graph. (C) CCK-8 assay results of MKN-28 cells on the modified substrates. NT, no collagen treatment; I_p, the intensity of the peak current; Student's *t*-test, $N = 3$; $*p < 0.05$; ns, not significant.

Supplementary Fig. S5. The frequency of various curcumin-NLC particle sizes from TEM.

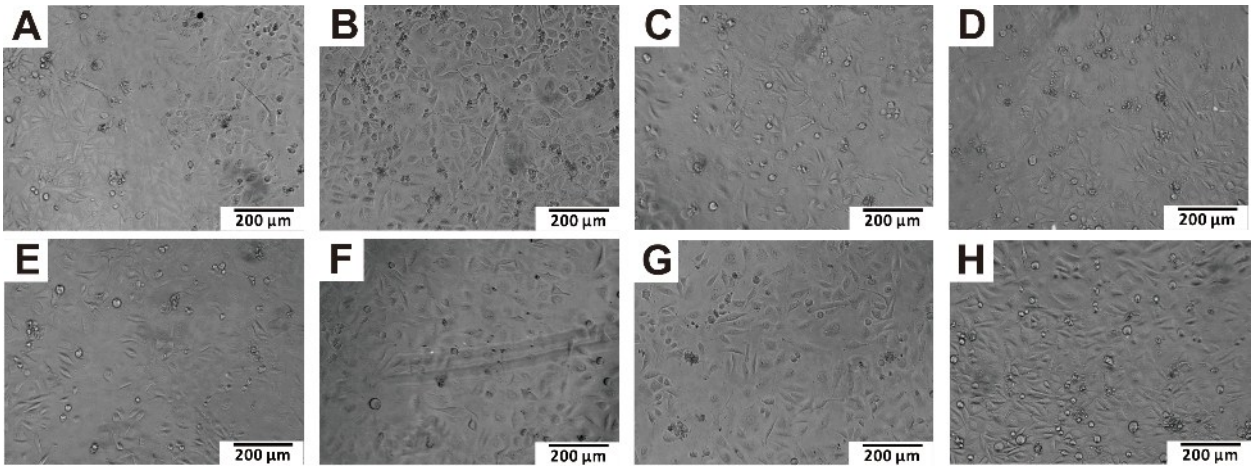
Supplementary Fig. S6. Optical microscopy images of MKN-28 cells after treatment with bare nanoliposomes. (A) NT or no treatment, (B) 10 μM, (C) 30 μM, (D) 50 μM, (E) 70 μM, and (F) 100 μM.

Supplementary Fig. S7. Electrochemical detection results and the amounts of cells on gold nanostructures–indium tin oxide composites treated with bare nanoliposomes. (A) NT or no treatment, (B) 10 μM, (C) 30 μM, (D) 50 μM, (E) 70 μM, and (F) 100 μM. I_p, the intensity of the peak current; Student's *t*-test, $N = 3$; $*p < 0.05$; ns, not significant.

Supplementary Figures



Supplementary Fig. S1.



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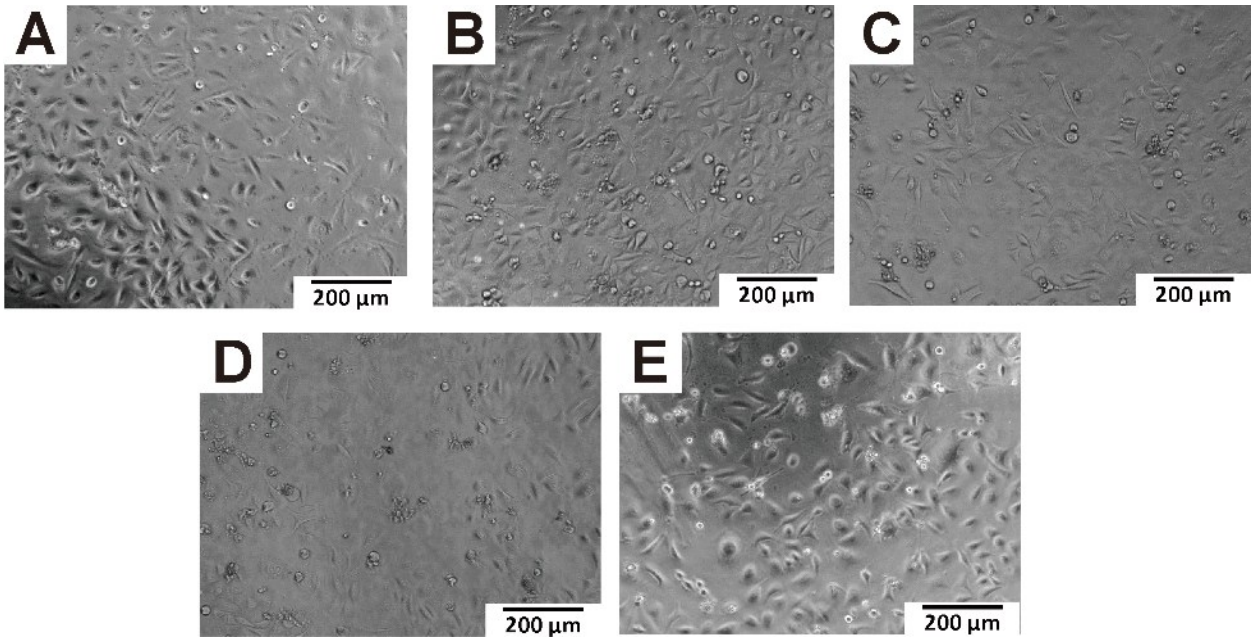

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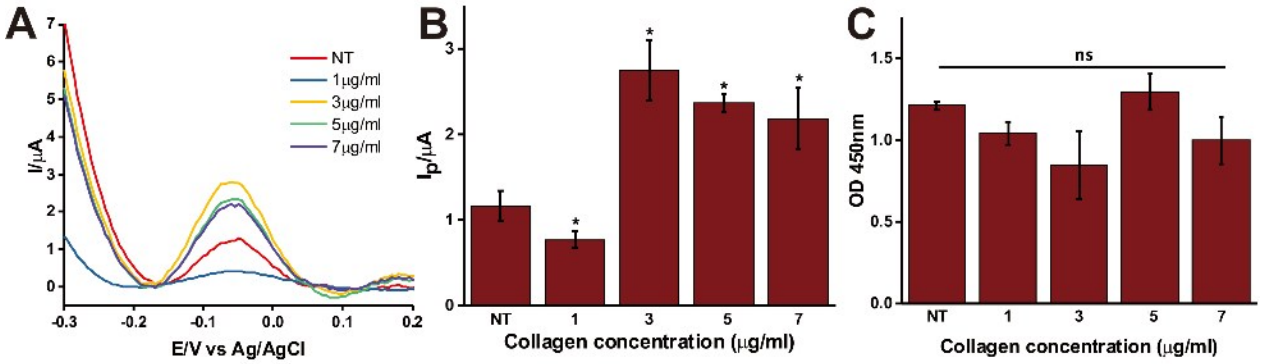

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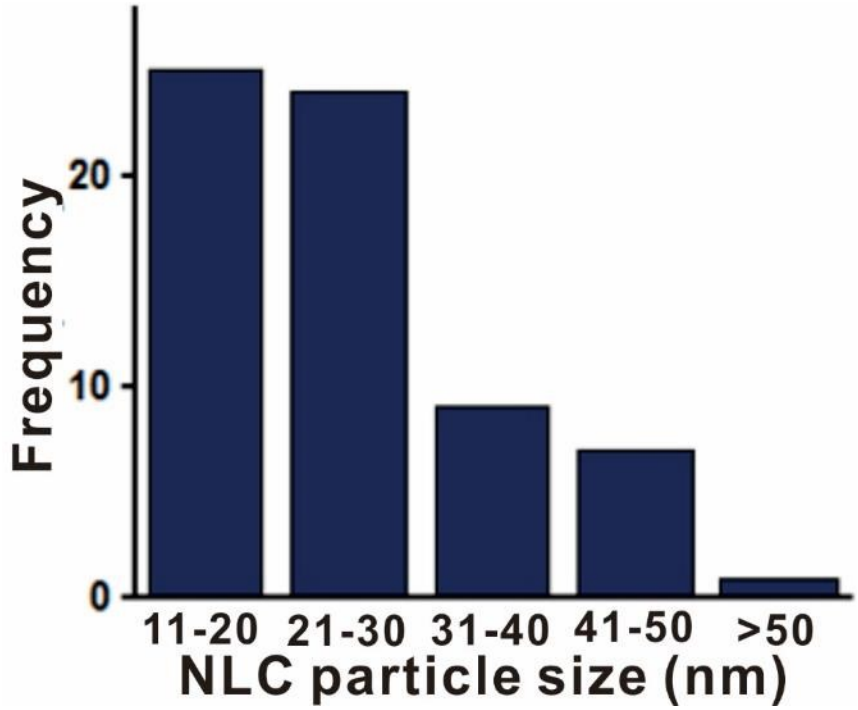

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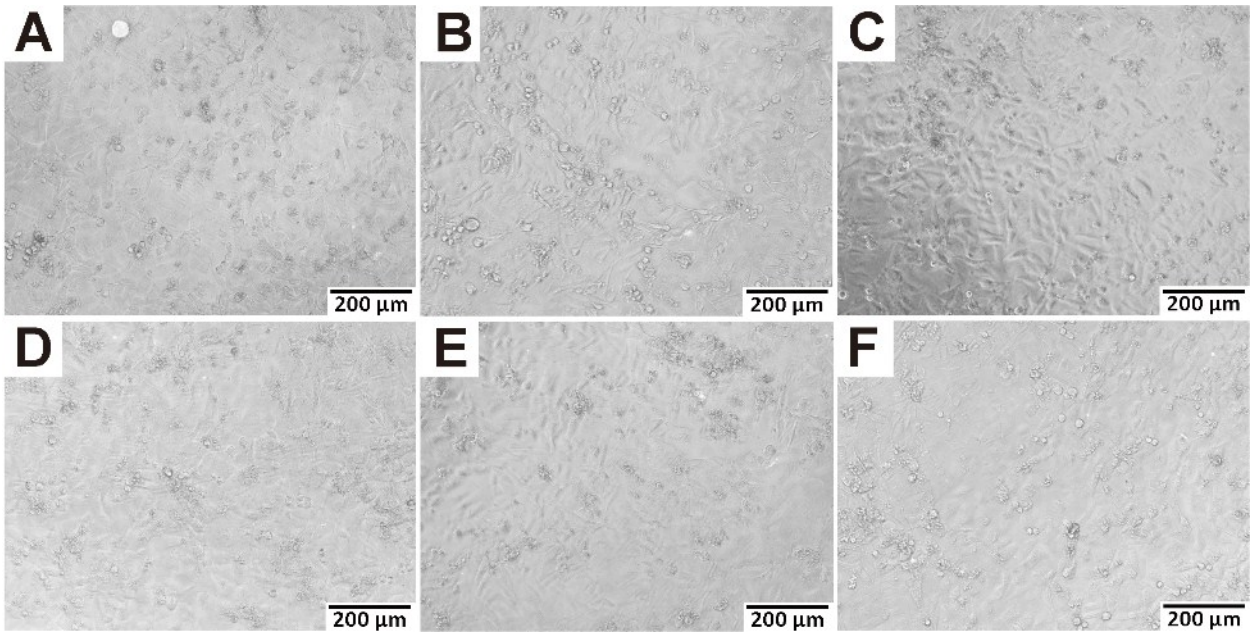

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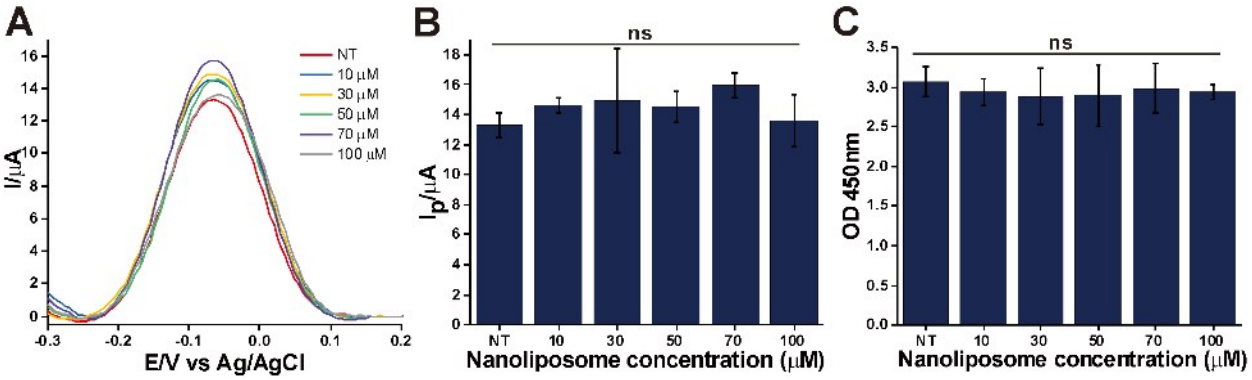

Supplementary Fig. S7.