

3. Supplementary Figures

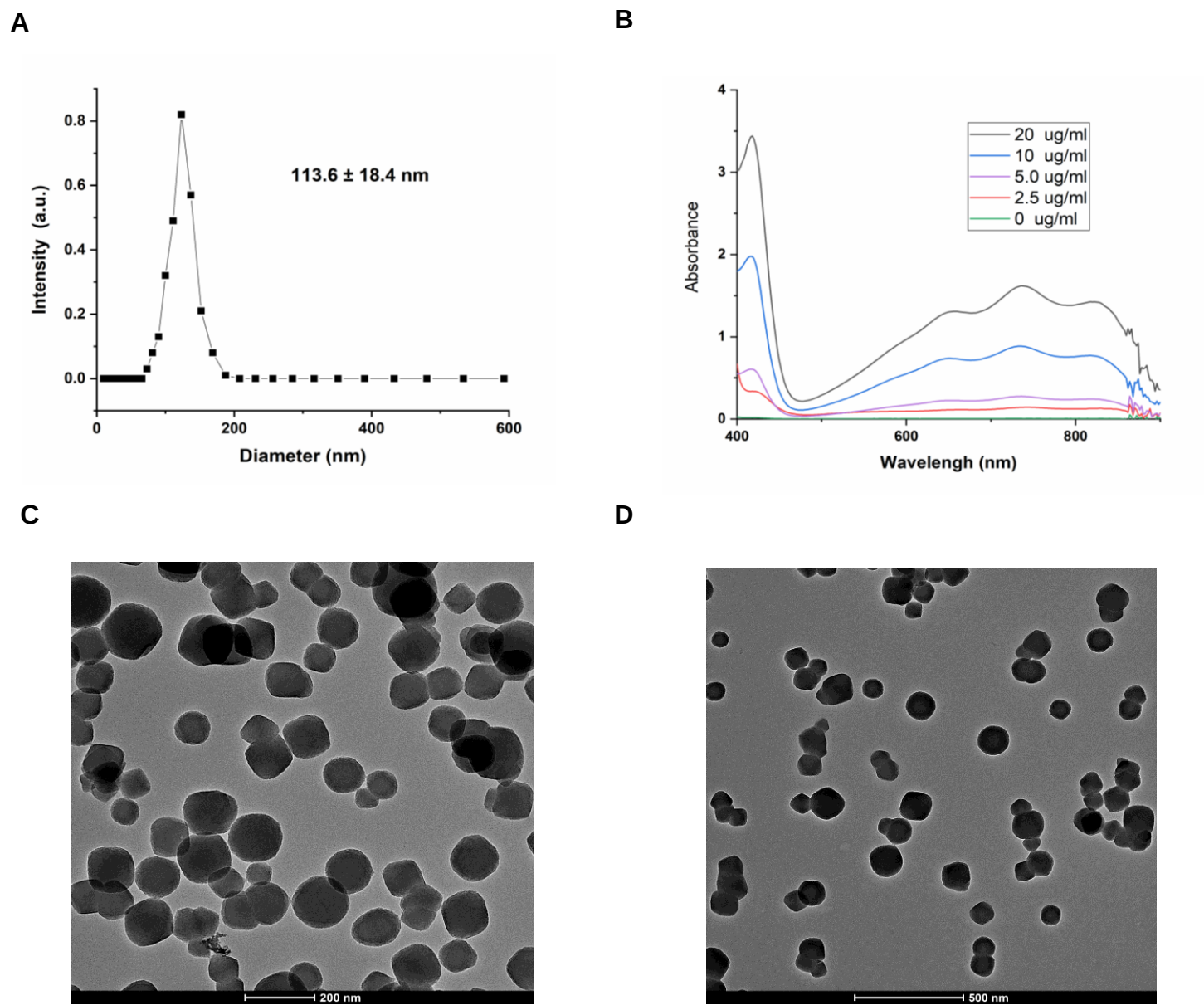


Fig. S1. Characterization of ICG@Uio-66 and ICG@Uio-66-UBI NPs. **A** The size distribution of ICG@Uio-66. **B** UV-vis spectra of different concentrations of ICG@Uio-66 mixed with TMB NPs. **C**, **D** TEM images of ICG@Uio-66-UBI NPs.

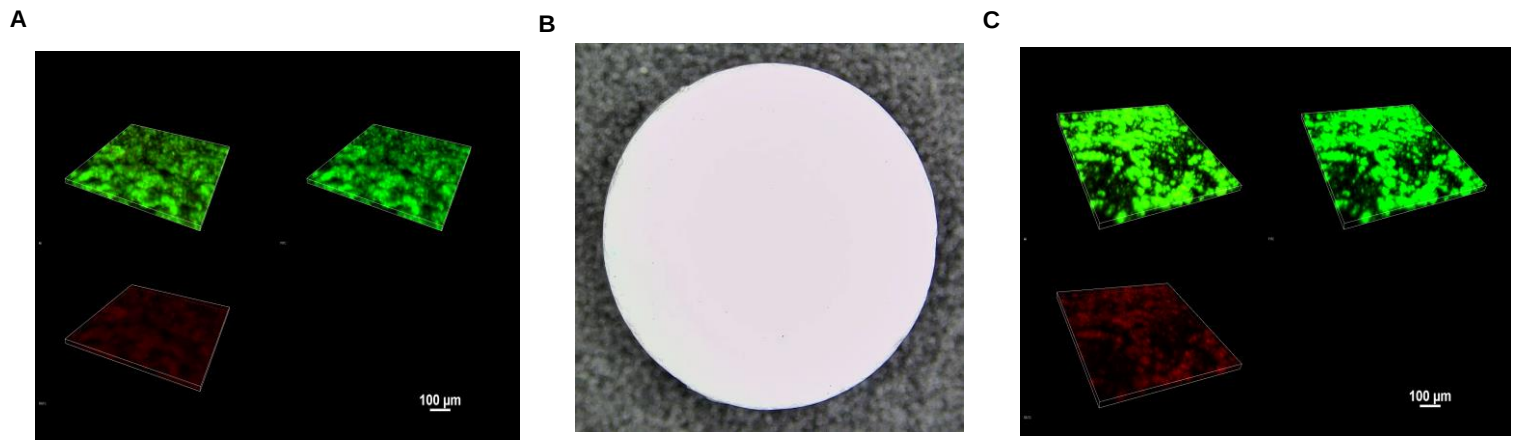


Fig. S2. Single-species biofilms were established on Hydroxyapatite slices. **A** Morphology of Hydroxyapatite slices under electron microscope. **B** Live/ dead staining of *pg* biofilms formed on Hydroxyapatite slices by laser confocal microscopy

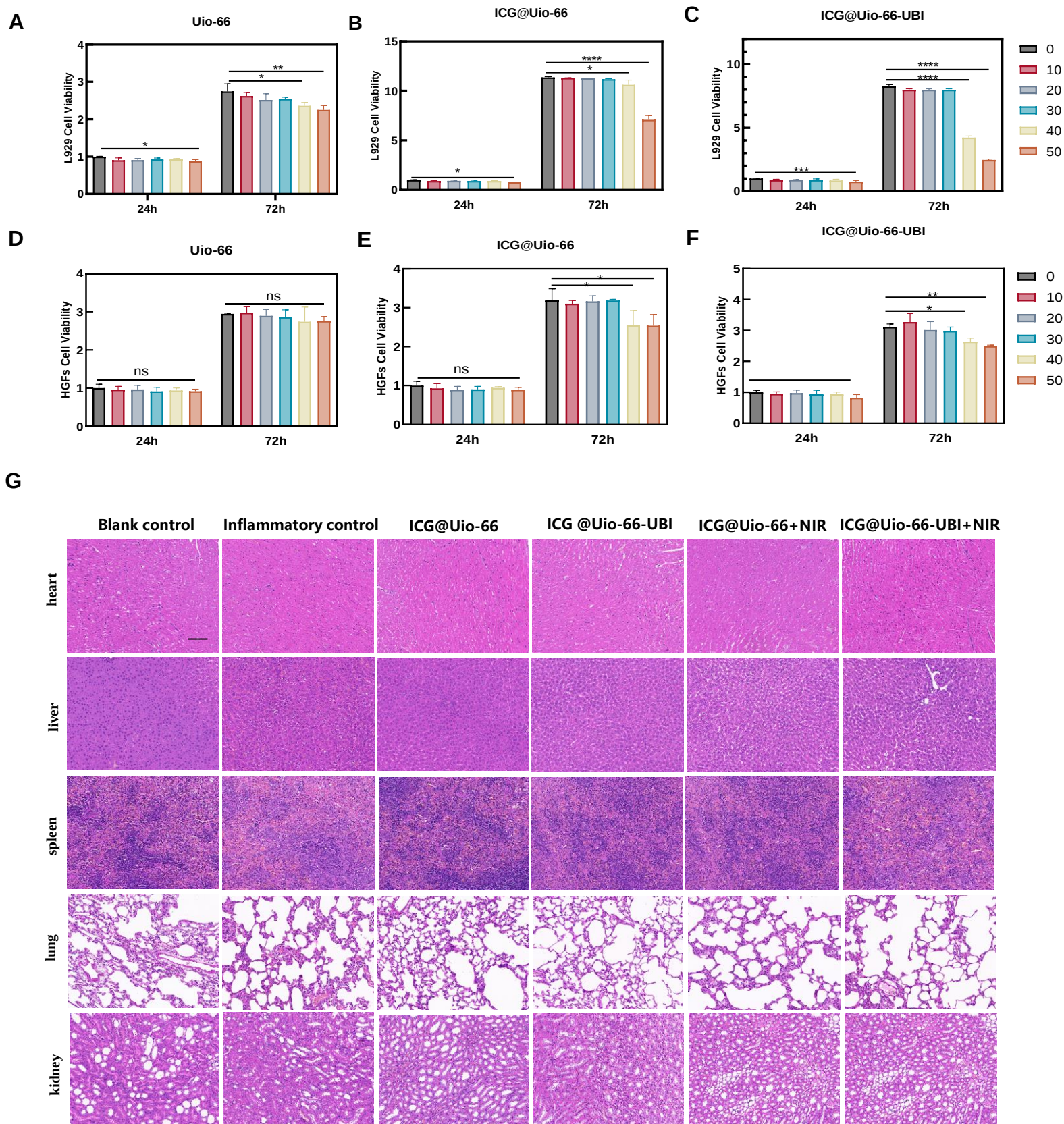


Fig. S3. Biosafety assays of NPs. **A-C** The cell viability of L929 fibroblasts incubated with different concentration (including 0, 10, 20, 30, 40 and 50 $\mu\text{g mL}^{-1}$) of Uio-66, ICG@Uio-66 and ICG@Uio-66-UBI NPs for 24h and 72 h. **D-F** The cell viability of HGFs in different concentration of Uio-66, ICG@Uio-66 and ICG@Uio-66-UBI NPs for 24h and 72 h. **G** H&E staining of major organs (including heart, liver, lung, spleen, and kidney) after various treatments. Scale bar, 100 μm . Statistical significances were calculated via one-way ANOVA, * $p < 0.05$.

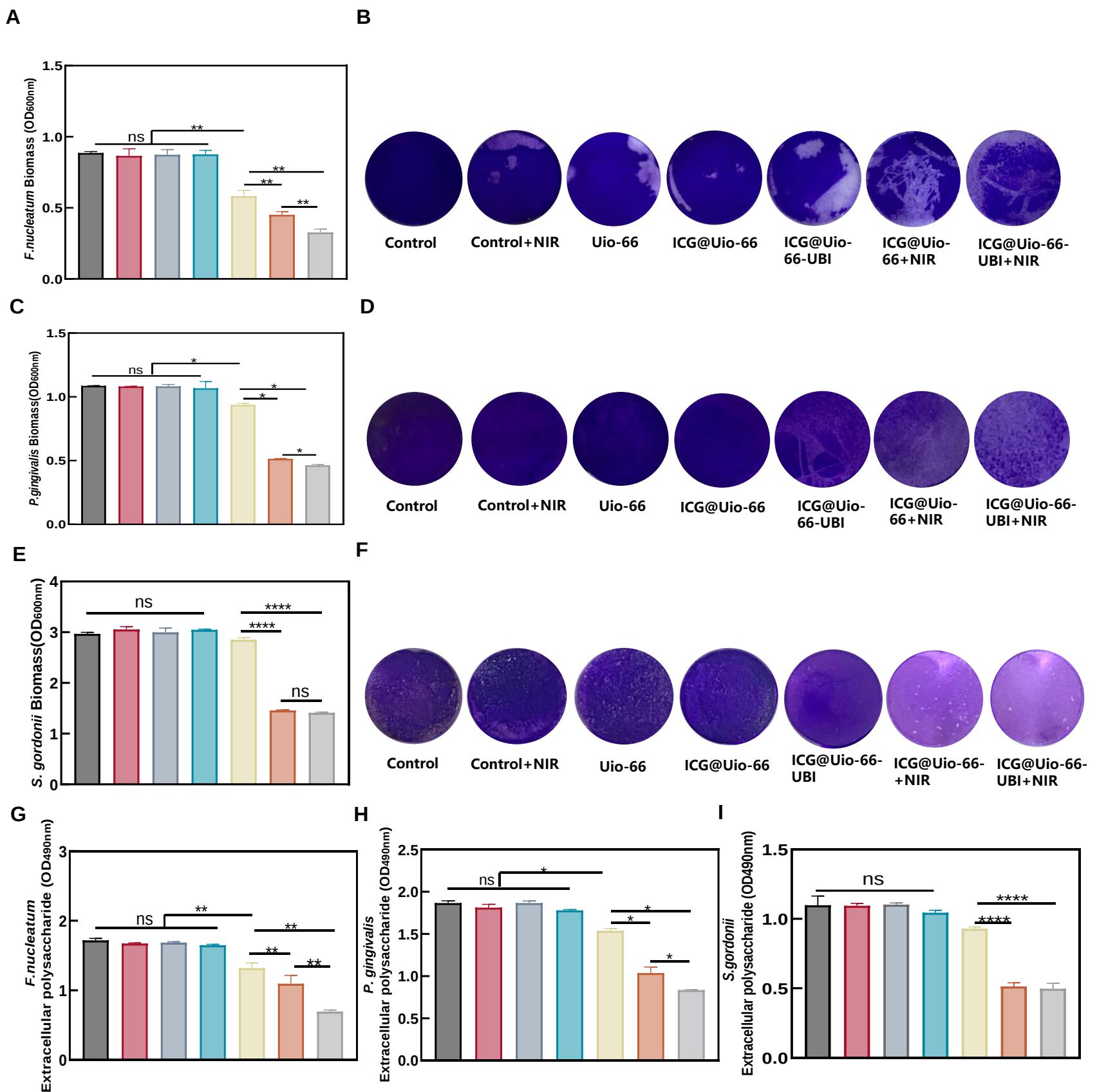


Fig. S4. Inhibition effect of ICG@Uio-66-UBI NPs on *F. nucleatum* and *P. gingivalis* biofilm formation. **A** Statistical data for biofilm biomass of *F. nucleatum*. **B** Crystal violet staining of *F. nucleatum* biofilms processed with different NPs. **C** Statistical data for biofilm biomass of *P. gingivalis*. **D** Crystal violet staining of *P. gingivalis* biofilms processed with different NPs. **E, F** Statistical data for EPS of *F. nucleatum* and *P. gingivalis*. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$.

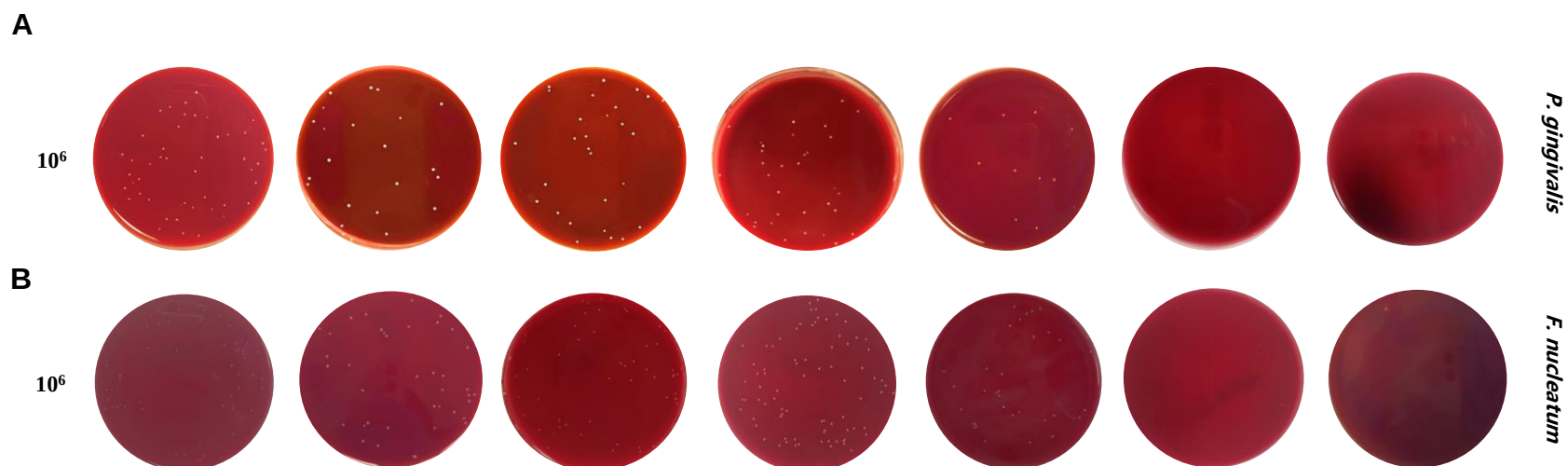


Fig. S5. Inhibition effect of ICG@Uio-66-UBI NPs on *F. nucleatum* and *P. gingivalis* biofilm formation. The images of *F. nucleatum* (**A**) and *P. gingivalis* (**B**) clones.

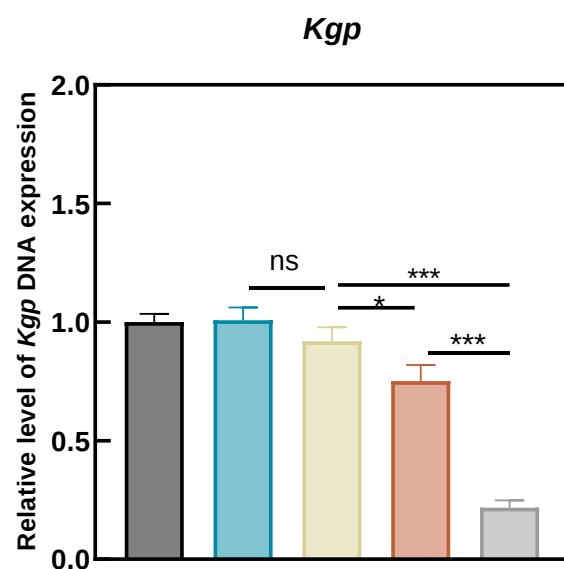


Fig. S6. RT-qPCR analysis of the relative mRNA level of virulence factor genes in *P. gingivalis* biofilms.

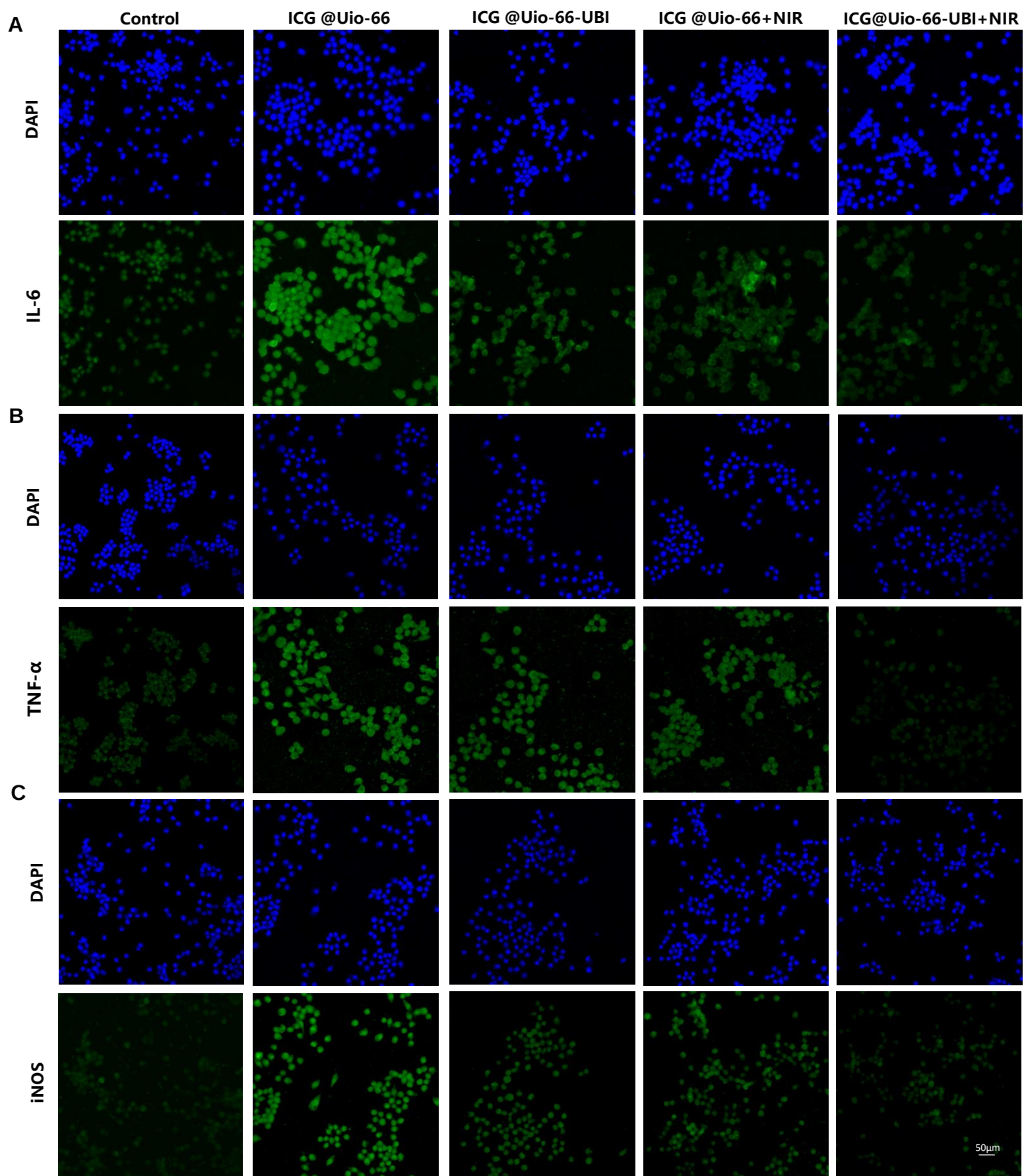


Fig. S7. Immunofluorescence staining of IL-6(A) , TNF-α(B) and iNOS (C) in a treatment model

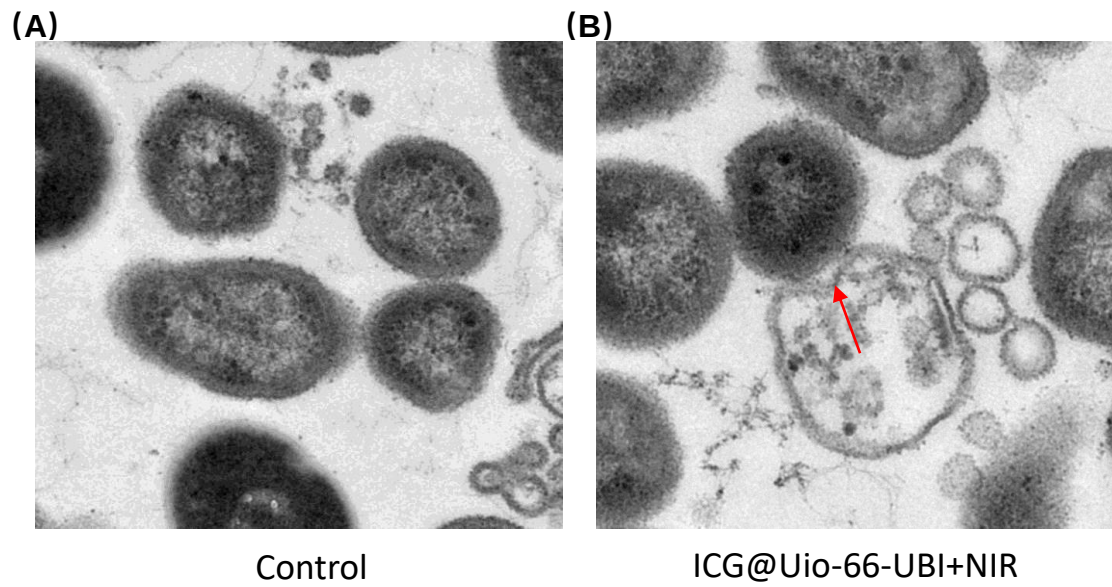


Fig. S8. TEM photomicrographs of *P. gingivalis* in (A) Control group and (B) ICG@Uio-66-UBI+NIR group (red arrow represent bacteria cell wall became ruptured.)