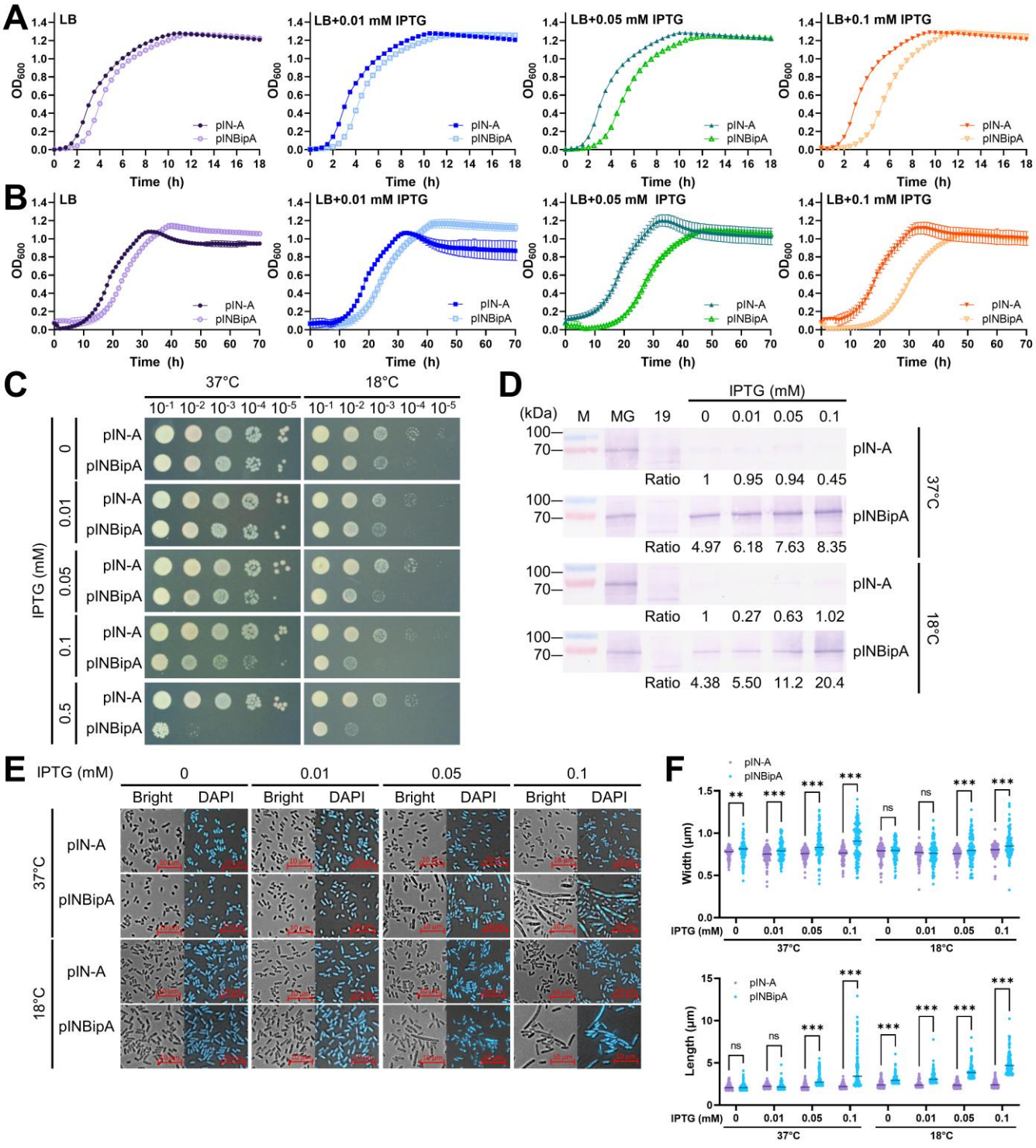


Fig. S4. Dose-dependent effects of BipA on bacterial growth and cell morphology. (A and B) Growth curves of *E. coli* MG1655 carrying the empty pIN-A vector or pINBipA at the indicated IPTG concentrations at 37°C (A) and 18°C (B). (C) Spotting assays of the same strains on LB agar containing the indicated IPTG concentrations at 37°C and 18°C. (D) Western blot analysis of BipA expression at the

indicated IPTG concentrations. Protein samples from the pIN-A and pINBipA transformants were diluted 40-fold before SDS-PAGE and immunoblotting. Relative BipA protein levels were quantified from anti-BipA immunoblots using ImageJ and normalized to the empty pIN-A vector control at the corresponding temperature, which was assigned a value of 1.0. (E) Representative bright-field and DAPI-stained images of cells grown at 37°C and 18°C at the indicated IPTG concentrations. Scale bars = 10 μm. (F) Quantitative analysis of cell width and length under the same conditions. A total of 100 cells were analyzed for each condition. Statistical significance is indicated as ns, not significant; $**p < 0.01$; $*** p < 0.001$.