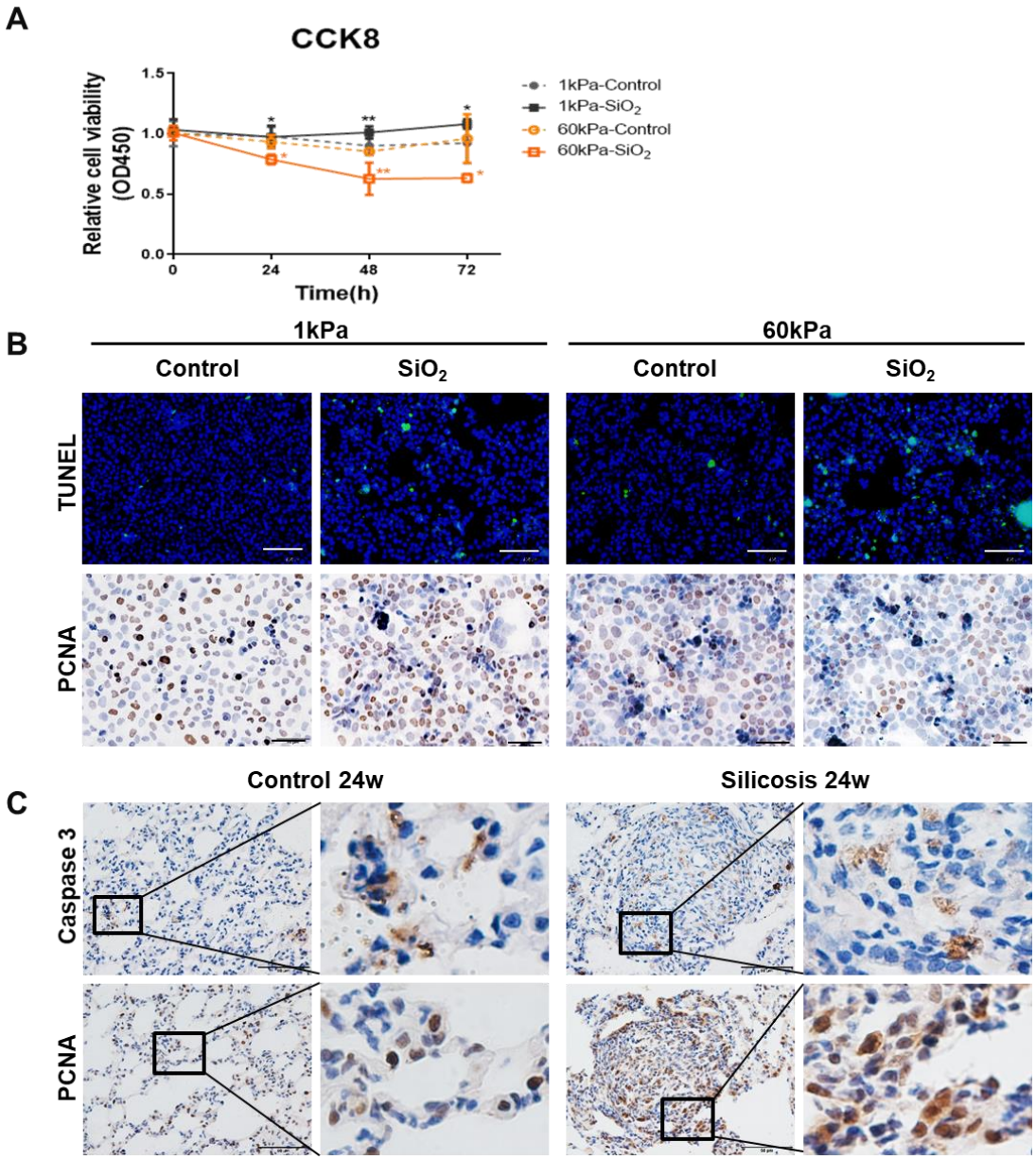

Figure S1 Proliferation and apoptosis of AECs *in vitro* and *in vivo*. (A) The cell viability of A549 cells was examined by the CCK-8 assay; cells were cultured on substrate (1 and 60 kPa) ± SiO_2 for 48 h. (B) Cell apoptosis and proliferation were examined by TUNEL and immunohistochemistry (PCNA) of A549 cells cultured on soft and stiff substrates with or without SiO_2 stimulation for 48 h. Scale bar = 50 μm. (C) Immunohistochemistry for caspase-3 (indicating apoptosis) and PCNA in control and silicotic lung tissue. Scale bar = 100 μm.

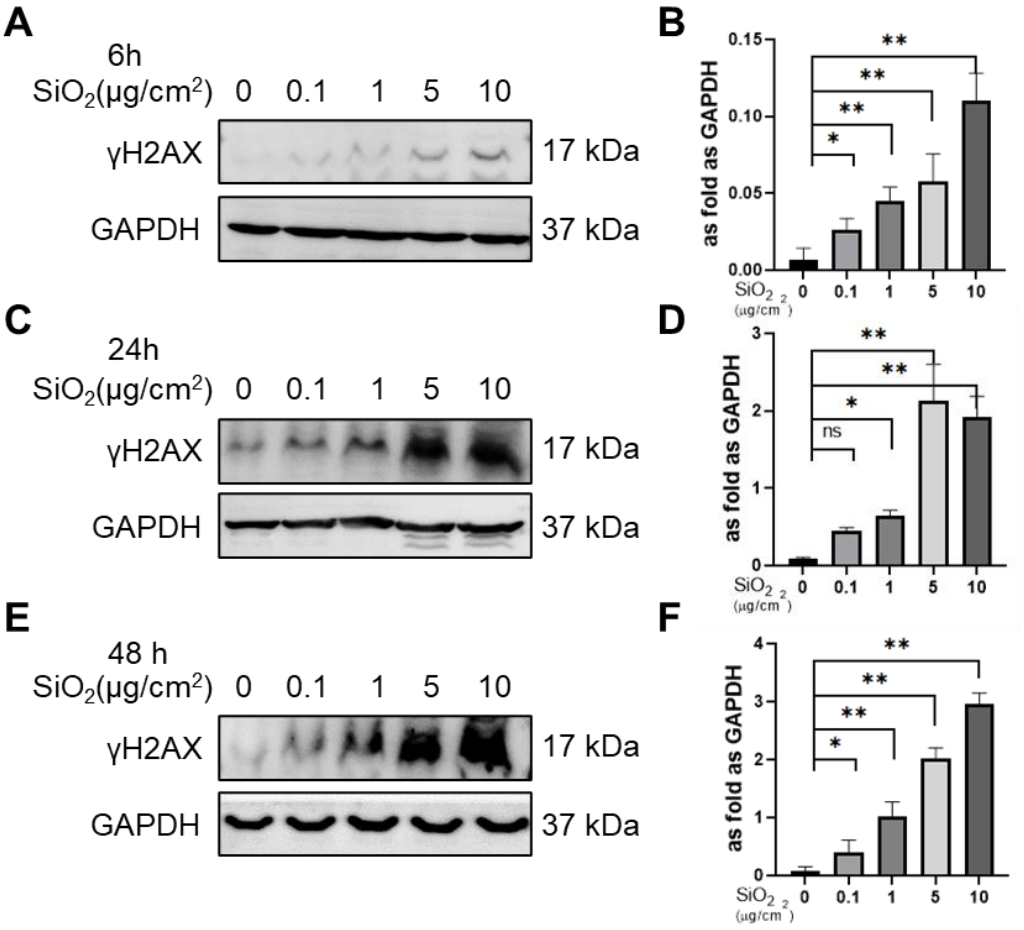

Figure S2 Effects of different concentrations of SiO_2 on epithelial cell DSBs. Expression of γH2AX in A549 cells exposed to silica (0, 0.1, 1, 5, 10, μg/cm^2) for (A) 6 h, (B) 24 h, and (C) 48 h. Quantitation of the western blots normalized to the loading control protein GAPDH; each was performed in triplicate. *$p < 0.05$.

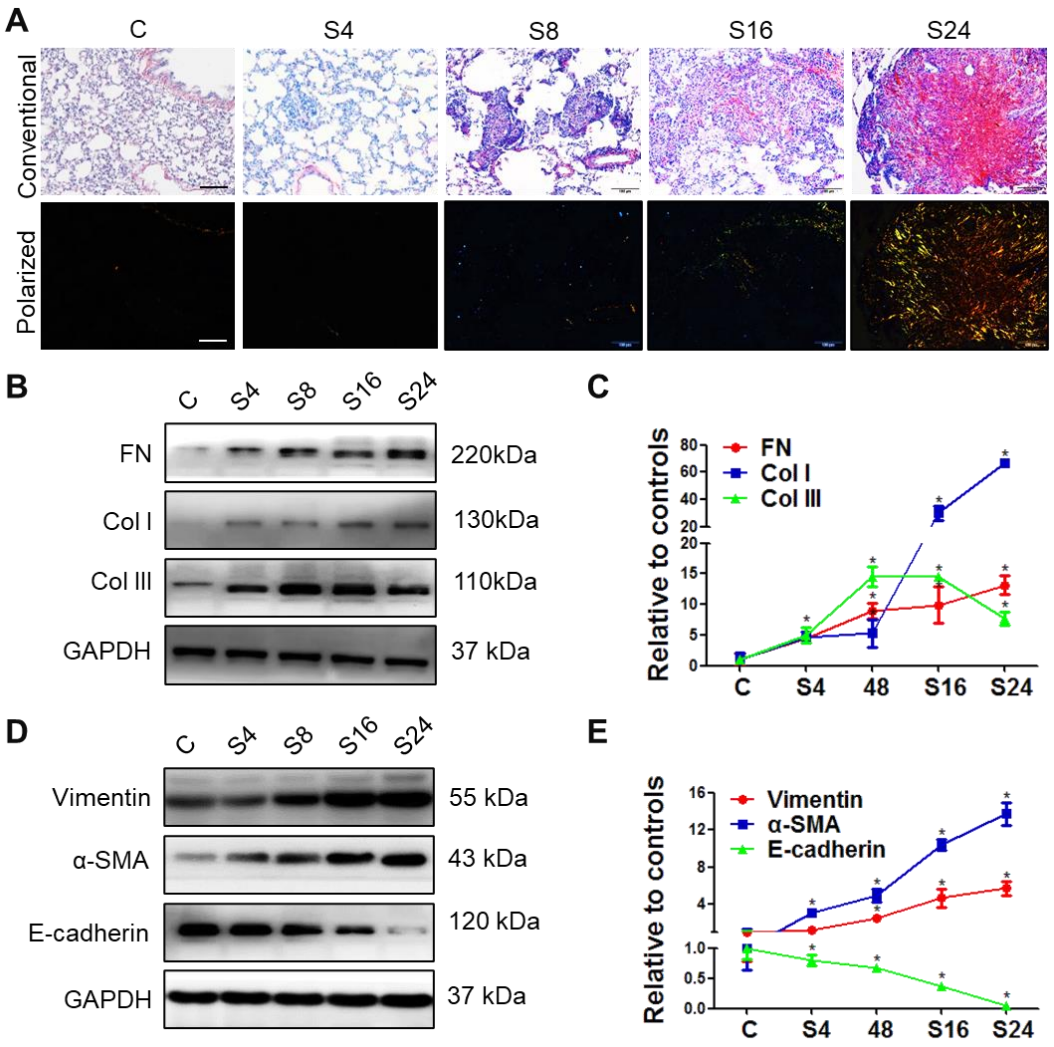

Figure S3 Morphology alterations in lungs of silicotic rats. (A) The Col deposition in lung tissue of rats was detected by Sirius-Red staining and viewed by conventional and polarized light. Scale bars = 100 μm. (B, C) Western blotting and corresponding densitometry data of FN, Col I, and Col III expression in lung tissue of rats. (D, E) Western blotting and corresponding densitometry data of expression of vimentin, α-SMA, and E-cadherin in lung tissue of rats. Quantitation of the western blots normalized to the loading control protein GAPDH, each performed in triplicate. *p < 0.05.

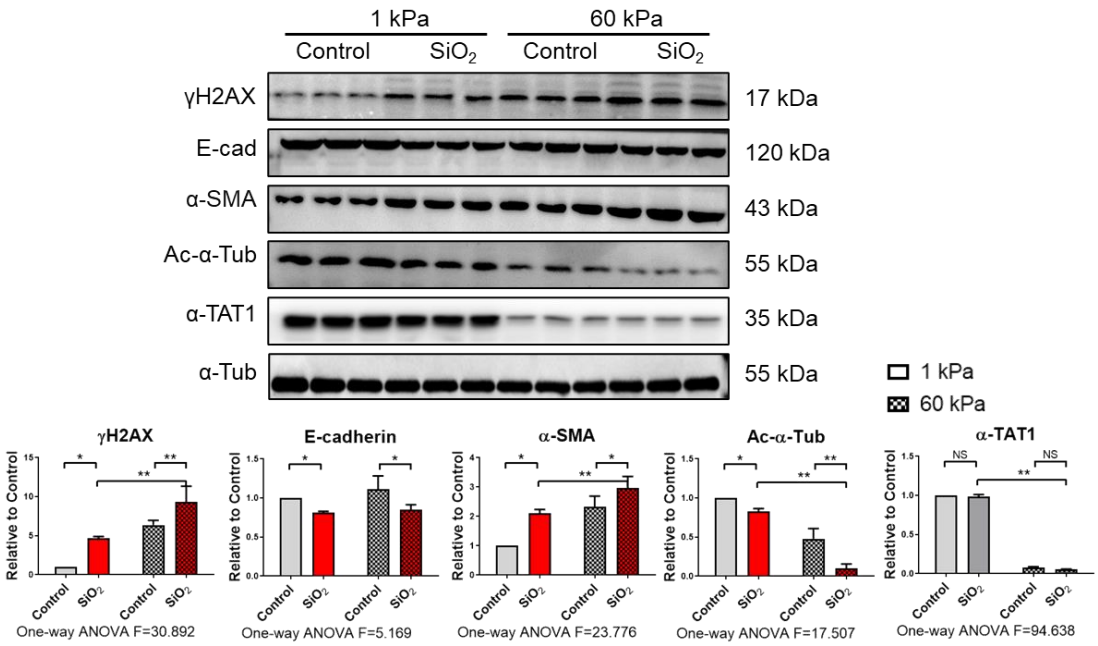

Figure S4 Effects of substrates stiffness on DSBs and EMT in mouse lung epithelial cells (MLE12). Western blotting and corresponding densitometry data of γH2AX, E-cadherin, α-SMA, Ac-α-Tub, and α-TAT1 expression in MLE12 cells cultured on soft and stiff substrates with or without SiO_2 stimulation.