Supplemental figure legends

Figure S1. Substratum stiffness regulates proliferation and apoptosis in ZR-75-1 human breast cancer cells. (**A**) Phase-contrast images of ZR-75-1 human breast cancer cells cultured on soft (0.1 kPa) or stiff (100 kPa) substrata. (**B**) EdU analysis of ZR-75-1 cells on soft (0.1 kPa) or stiff (100 kPa) substrata. Green, EdU-positive; blue, nuclei. (**C**) Quantification of EdU incorporation in ZR-75-1 cells on soft or stiff substrata. (**D**) TUNEL assay for apoptosis in ZR-75-1 cells cultured on soft or stiff substrata. Red, TUNEL-positive; blue, nuclei. (**E**) Quantification of TUNEL staining in ZR-75-1 cells cultured on soft or stiff substrata. Scale bars, 20 μm. Shown are mean ± S.E.M. for 3 experiments. * $p < 0.05$ (one-way ANOVA).

Figure S2. Substratum stiffness regulates response to tamoxifen in MCF7 human breast cancer cells. Quantification of EdU incorporation in MCF7 cells on substrata with a range of stiffnesses. Shown are mean ± S.E.M. for 3 experiments. ** $p < 0.01$, *** $p<0.001$ (one-way ANOVA).

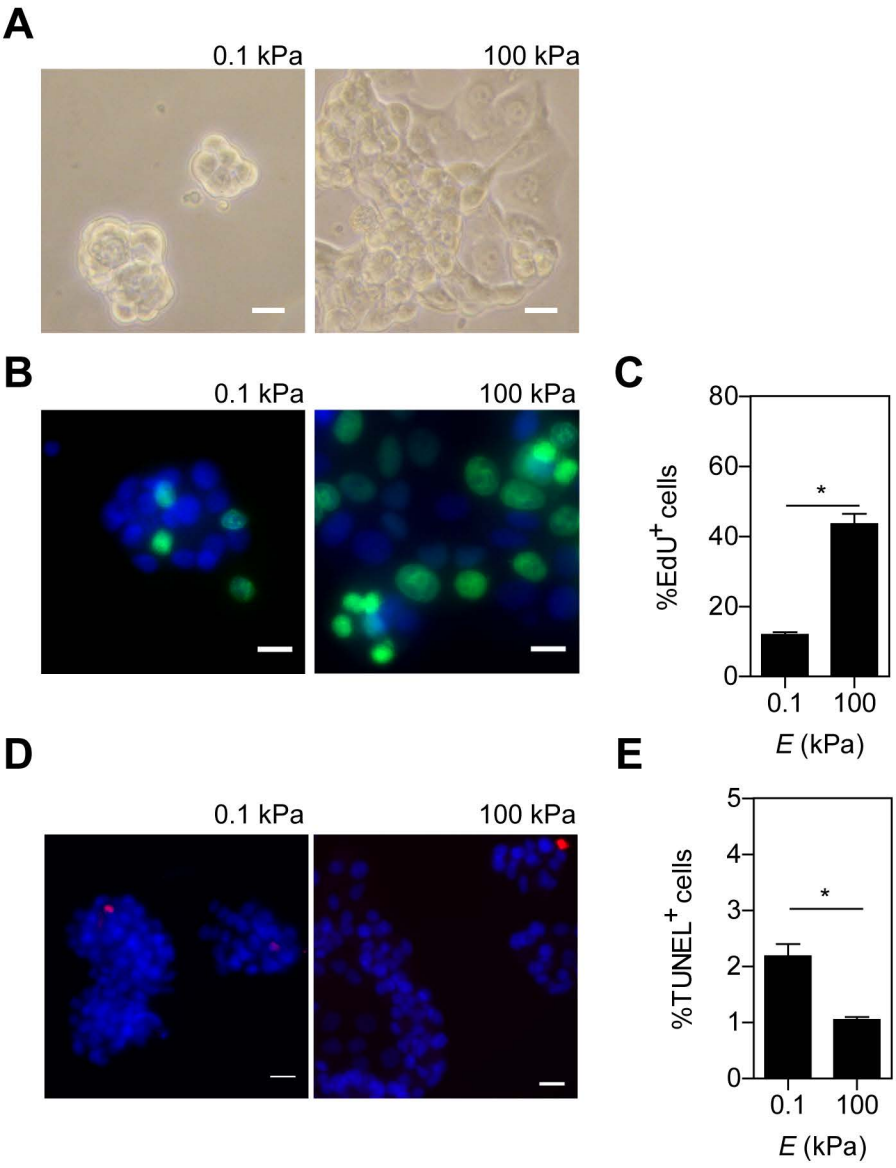
Figure S3. Substratum stiffness regulates autophagy and response to tamoxifen in ZR-75-1 human breast cancer cells. Immunoblotting analysis for (**A**) ERα, (**B**) LC3B or (**C**) p62 in ZR-75-1 cells. The densitometry analysis for ERα/GAPDH, LC3B-II/GAPDH or p63/GAPDH are given below each blot. (**D**) Immunofluorescence analysis for LC3B to label autophagosomes in ZR-75-1 cells cultured on soft or stiff substrata. Green, LC3B; blue, nuclei. Quantification of (**E**) EdU incorporation or (**F**) TUNEL staining in ZR-75-1 cells in the presence or absence of tamoxifen and CQ. Quantification of the (**G**) number and (**H**) total volume of autophagosomes in

ZR-75-1 cells after ectopic expression of ILK on soft or stiff substrata. Scale bars, 10 μm. Shown are mean ± S.E.M. for 3 independent experiments. * $p < 0.05$, ** $p<0.01$ (one-way ANOVA).

Figure S4. The response of MCF7 cells to 5FU is regulated by substratum stiffness. (**A**) EdU analysis in MCF7 cells cultured on soft or stiff substrata and treated with either dmso control or 5-fluorouracil (5FU; 5 μM). Green, EdU-positive; blue, nuclei. (**B**) Quantification of EdU incorporation in cells on soft or stiff substrata treated with either dmso or 5FU. (**C**) TUNEL assay for apoptosis in 5FU-treated MCF7 cells cultured on soft or stiff substrata. Red, TUNEL-positive; blue, nuclei. (**D**) Quantification of TUNEL staining in MCF7 cells on soft or stiff substrata treated with or without 5FU. Scale bars, 20 μm. Shown are mean ± S.E.M. for 3 experiments. * $p < 0.05$, *** $p<0.001$ (two-way ANOVA).

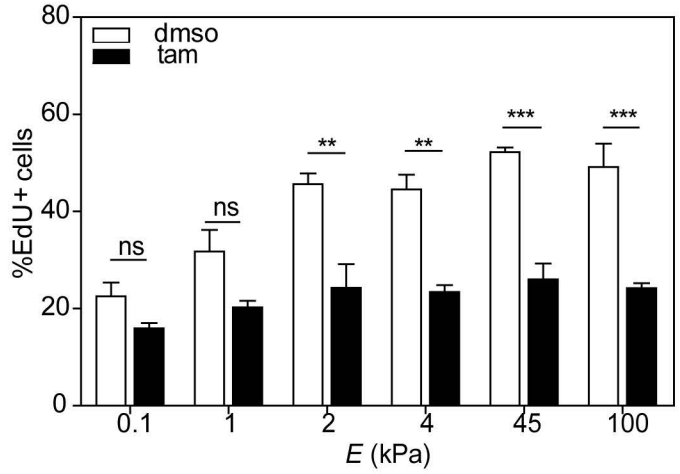
Figure S5. Blocking autophagy pharmacologically renders MCF7 cells sensitive to 5FU. (**A**) Immunofluorescence analysis for LC3B in MCF7 cells cultured on soft or stiff substrata and treated with either dmso control or 5-fluorouracil (5FU; 5 μM). Green, LC3B; blue, nuclei. Quantification of the (**B**) number and (**C**) total volume of autophagosomes in MCF7 cells cultured on soft or stiff substrata in the presence or absence of 5FU. Quantification of (**D**) EdU incorporation or (**E**) TUNEL staining in MCF7 cells in the presence or absence of 5FU and CQ. Scale bars, 10 μm. Shown are mean ± S.E.M. for 3 independent experiments. * $p < 0.05$, *** $p<0.001$ (two-way ANOVA).

Supplemental Figure 1

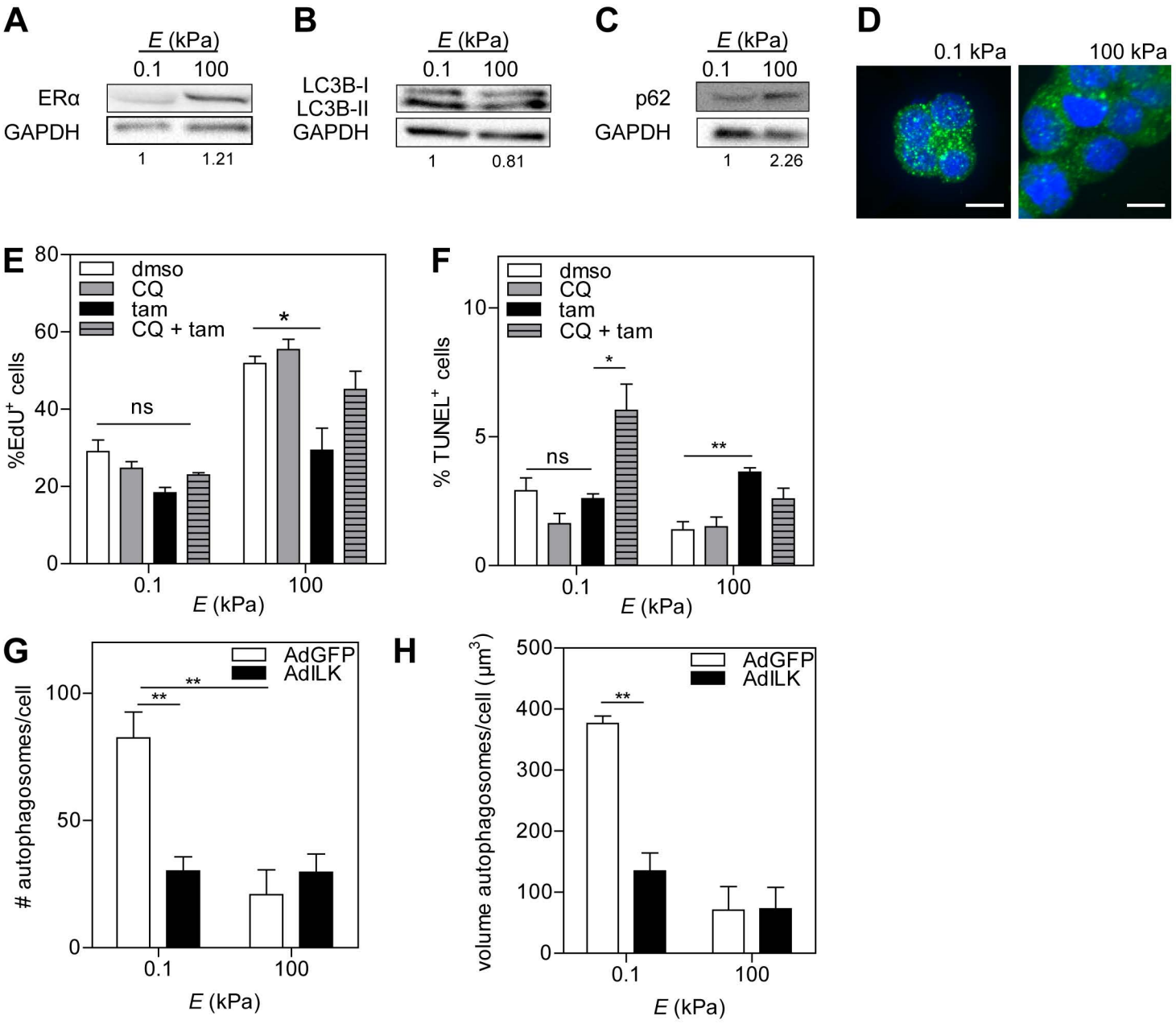


Supplemental Figure 2

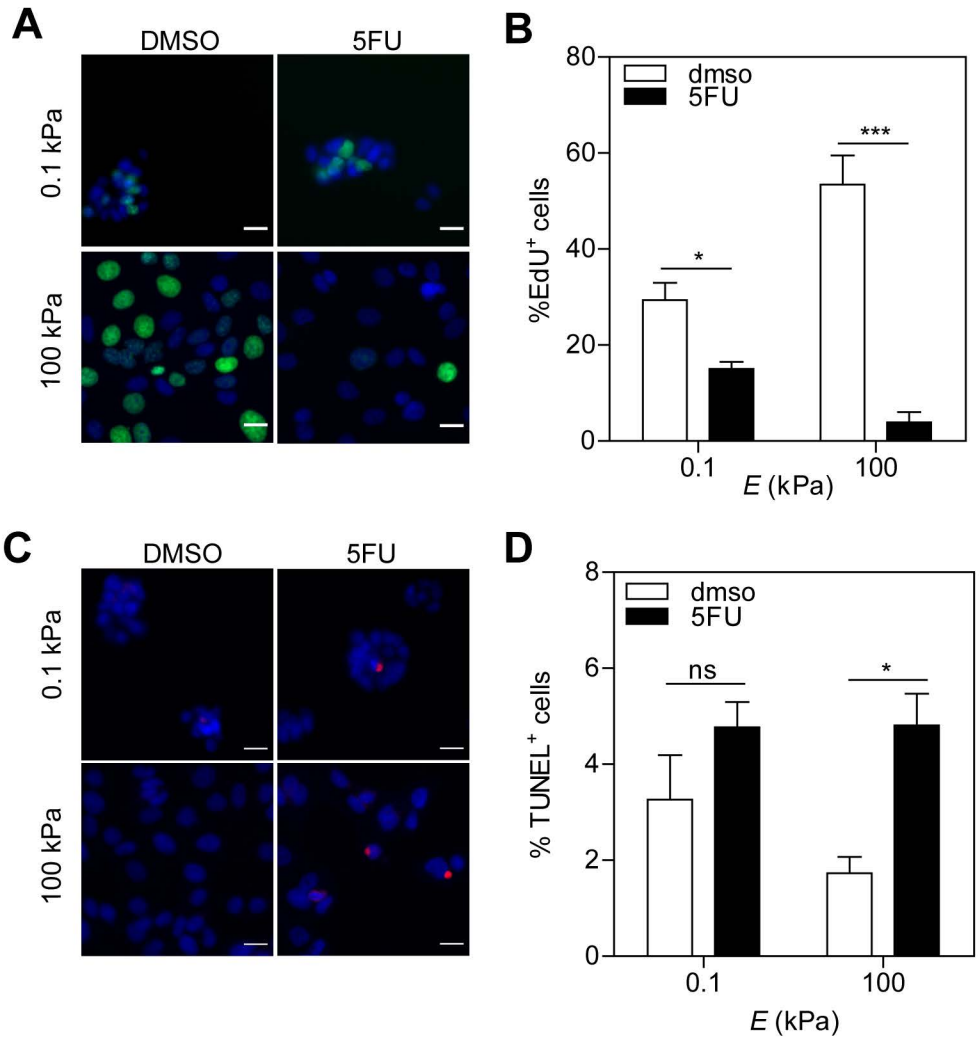
A



Supplemental Figure 3



Supplemental Figure 4



Supplemental Figure 5