Figure S1. Western blotting bands of Fig. 1A. (A) The vimentin band corresponding to Fig. 1A is indicated by the red dotted line. In the band, negative control (NC) is marked with '1' and siRNA-transfected (siVim) cells are marked with '2'. The western blot images of vimentin were measured at different exposure times of 5, 10, 15, 30 and 60 sec to obtain high-resolution images but avoid overshoot. (B) GAPDH was used as a housekeeping gene. An image exposed for 10 sec was selected. Since the membrane was cleaved before hybridization with the antibody, the full-length membranes were not presented. The experiment was repeated three times for each cell. Bands of western blots were quantified with ImageJ (version 1.53s, https://imagej.nih.gov/ij/). NC, negative control; si, small interfering.

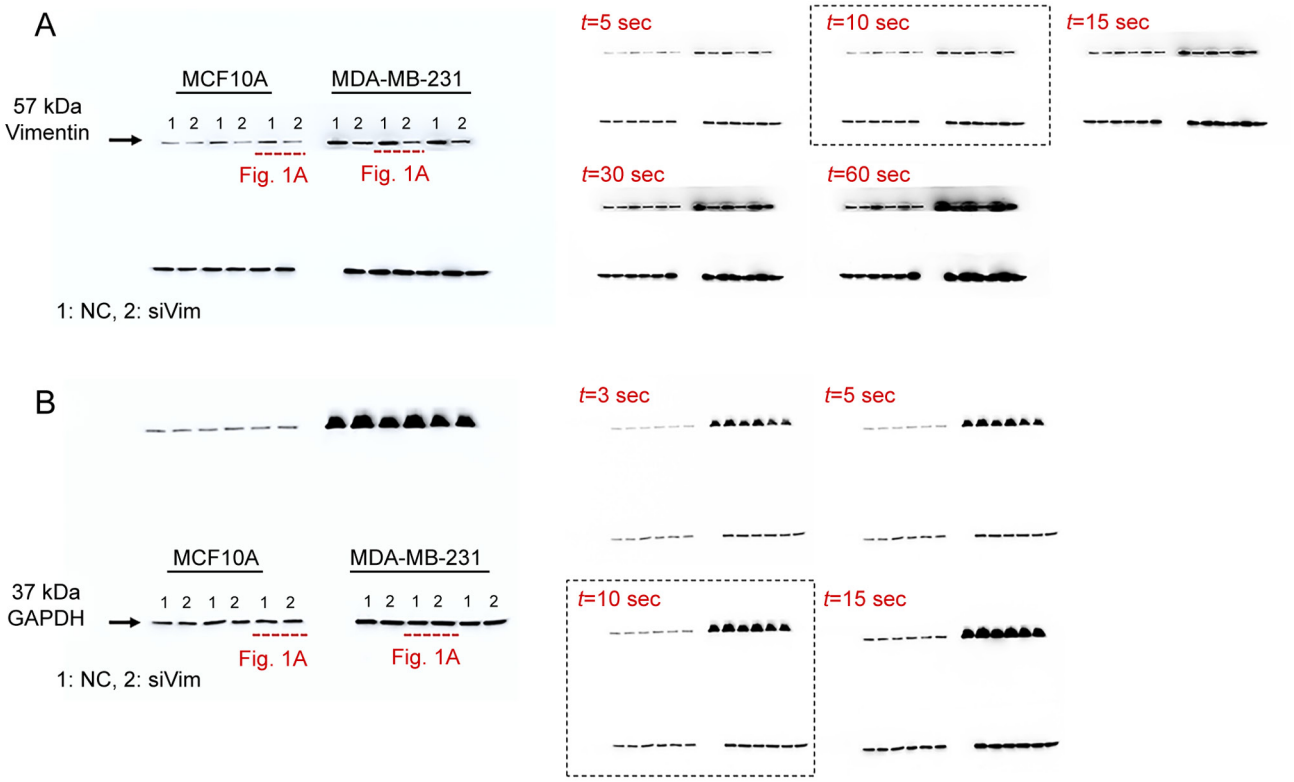

Figure S2. Western blotting results of integrin β1 for (A) MCF10A_siVim and (B) MDA-MB-231_siVim. Western blotting bands of (C) integrin β_1, (D) vimentin and (E) GAPDH. The bands corresponding to (A) and (B) are marked with arrows in (C), (D) and (E). The photographic images of the membranes in F, G and H correspond to C, D and E, respectively. Band of western blotting was quantified with ImageJ (version 1.53s, https://imagej.nih.gov/ij/).

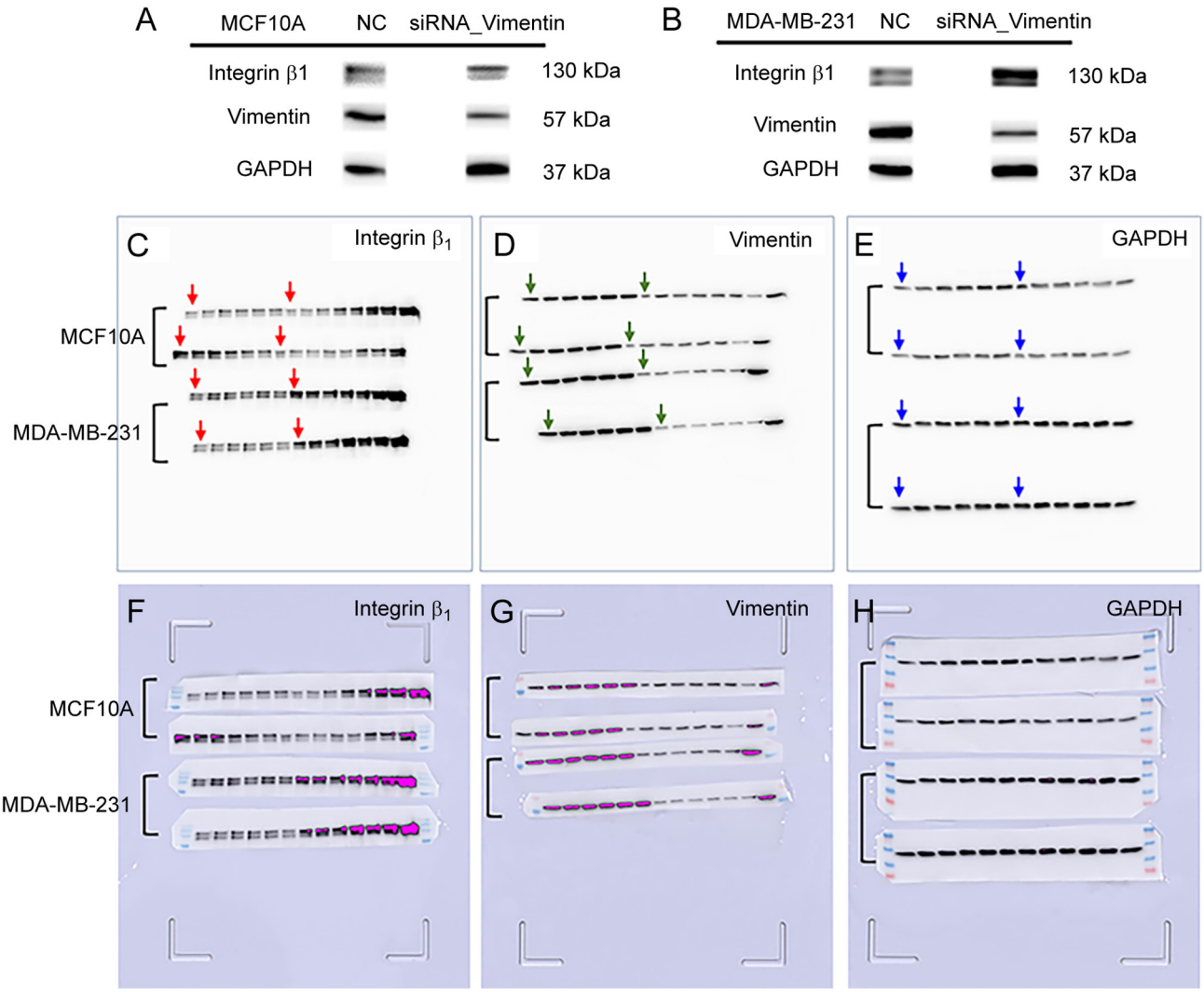

Figure S3. Altered parodic mobility of cells due to vimentin knockdown in MCF10A and MDA-MB-231. (A) The merged image of the brightfield and fluorescence signal of Fig. 4A. The dark region in the optical image corresponds with the green fluorescence region in the fluorescence image. Periodic protrusion movements were observed in both (B) MCF10A and (C) MDA-MB-213 cells. MCF10A showed periodic movement with a small amplitude, but the amplitude of MDA-MB-213 was relatively high. The red line represents the curve fit to the sinusoidal function and the white line indicates the change in the period of light contrast, respectively. Protrusion dynamics were analyzed using a modeling program (Tracker, Video Analysis and Modeling Tool, ver. 5.0.2, https://physlets.org/tracker/).

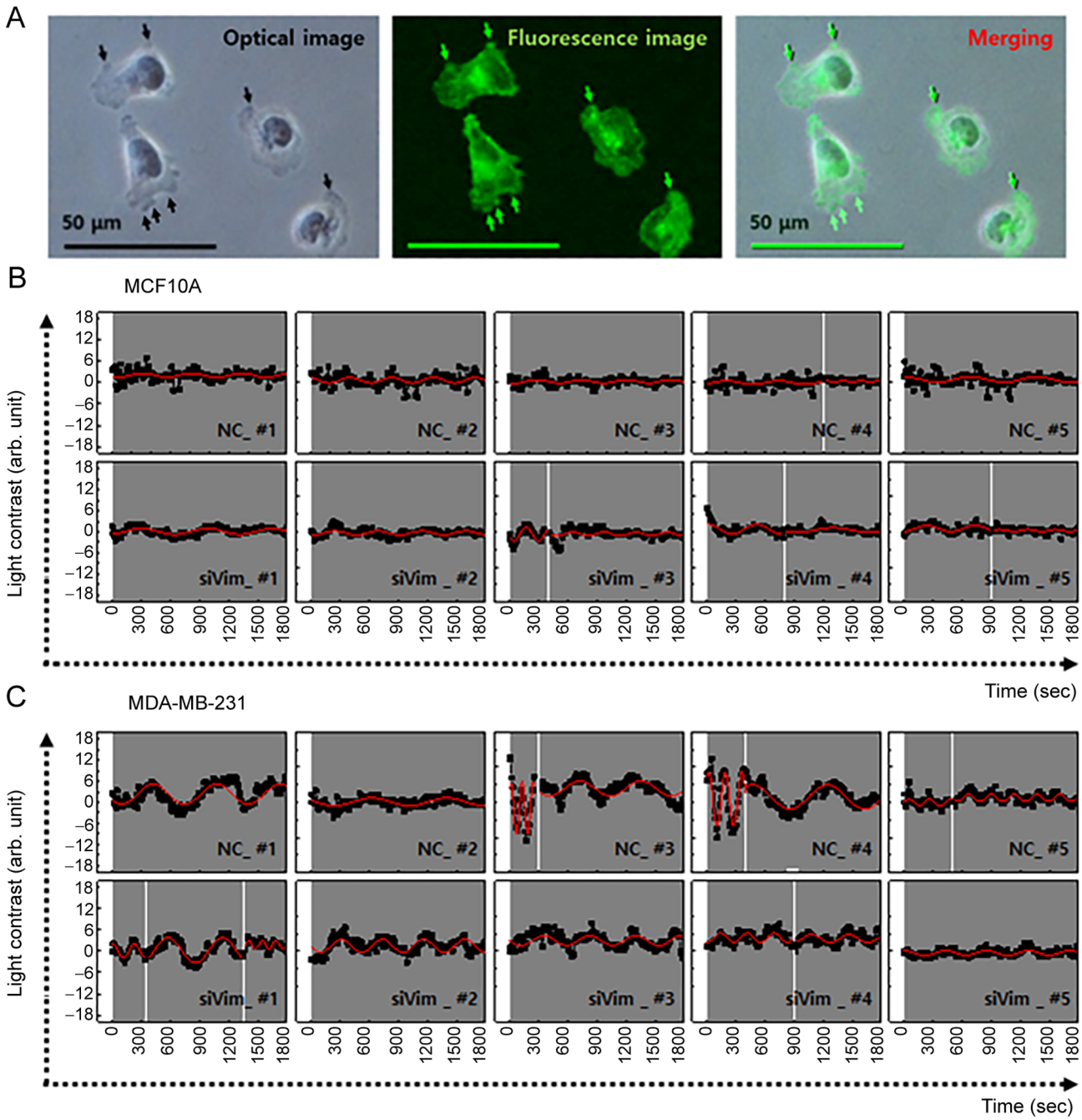

Figure S4. (A) Compared total actin (G+F)-actin to F-actin for both MCF10A and MDA-MB-231 cells; F-actin expression was decreased by 53% in 0.5 and 0.3 μM, respectively. (B) Band of western blots was quantified with ImageJ (version 1.53s, https://imagej.nih.gov/ij/). (C) Optical microscopic images of both cells were obtained after LatA treatment for 4 h. Red arrows indicate cells contracted by LatA treatment. The one-way ANOVA was performed on all groups and if significant differences were observed (P<0.05), post hoc analysis using Tukey's test was performed. The significant differences were indicated based on the reference groups, positive controls, highlighting the groups that exhibited significant variations. LatA, latrunculin A.

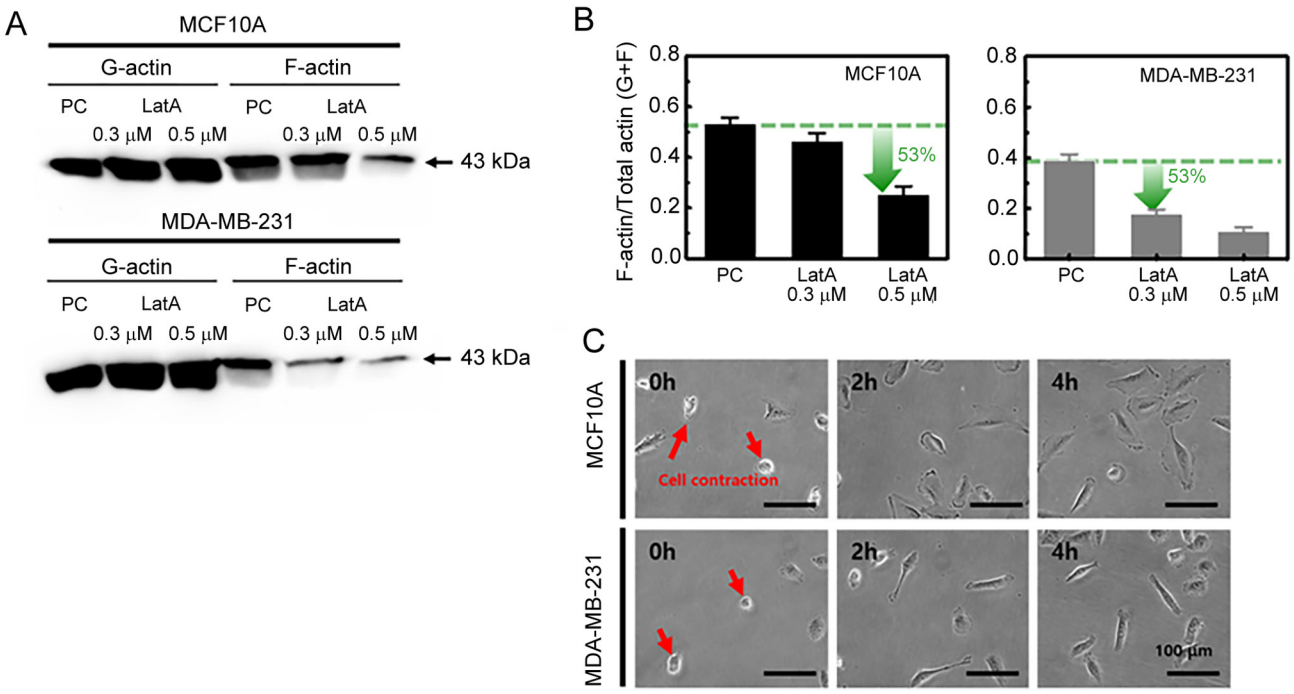

Figure S5. Representative force-distance curves before and after LatA treatment of (A) MCF10A and (B) MDA-MB-231 cells. Young's modulus was calculated by Sneddon model fitting. After LatA treatment, the elasticity of MCF10A cells decreased, but the elasticity of MDA-MB-231 cells increased. LatA, latrunculin A.