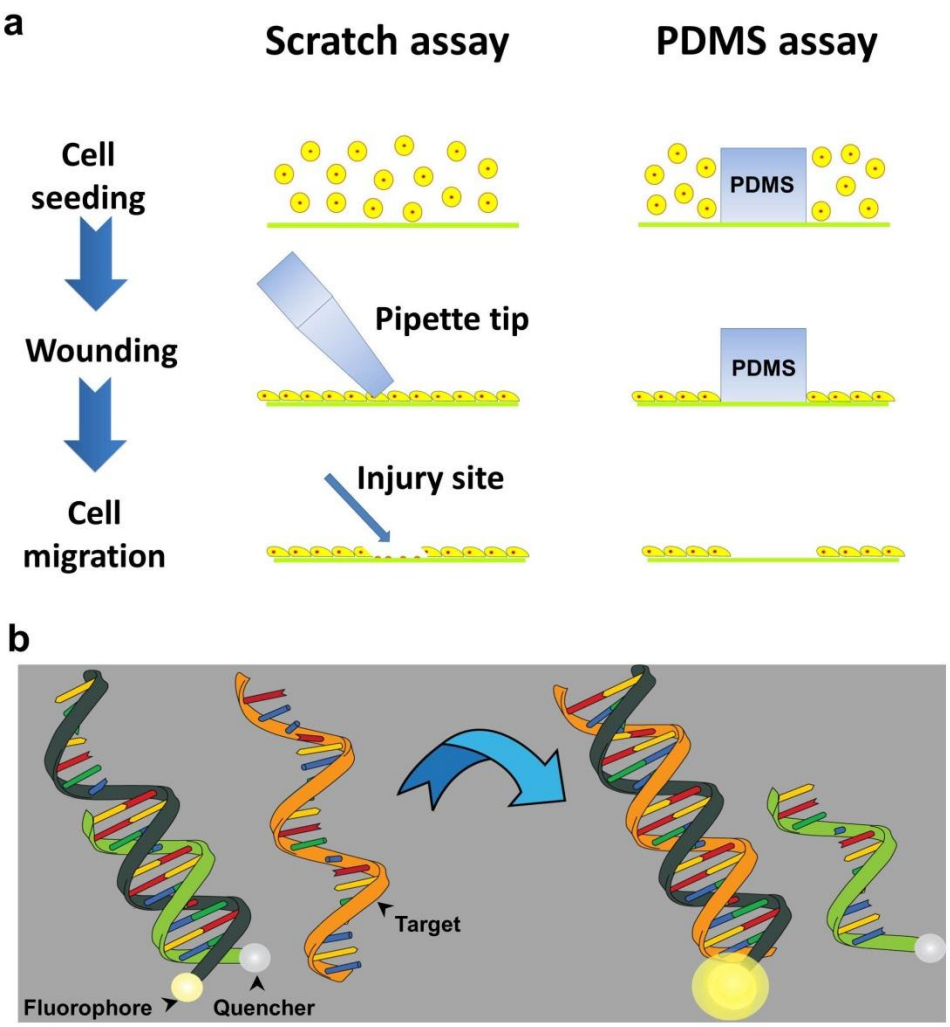

Fig. S1. Experimental approaches applied in this study. (a) Wound healing assays with different levels of cell injury. In the scratch assay, cells were seeded and became confluent after 48 hours. A pipette tip was used for creating a wound. In the PDMS assay, a PDMS slab was placed on the surface of the tissue culture well plate before cell seeding. After cells became confluent, the PDMS slab was lifted-off to create free space for cell migration with minimal injury. (b) Schematic of dsLNA probes for single cell analysis. In the absence of a target mRNA, the fluorescent donor is quenched by the quencher, which is in close proximity with the donor. In the presence of a target, the quencher probe is replaced by the target and the donor probe fluoresces.

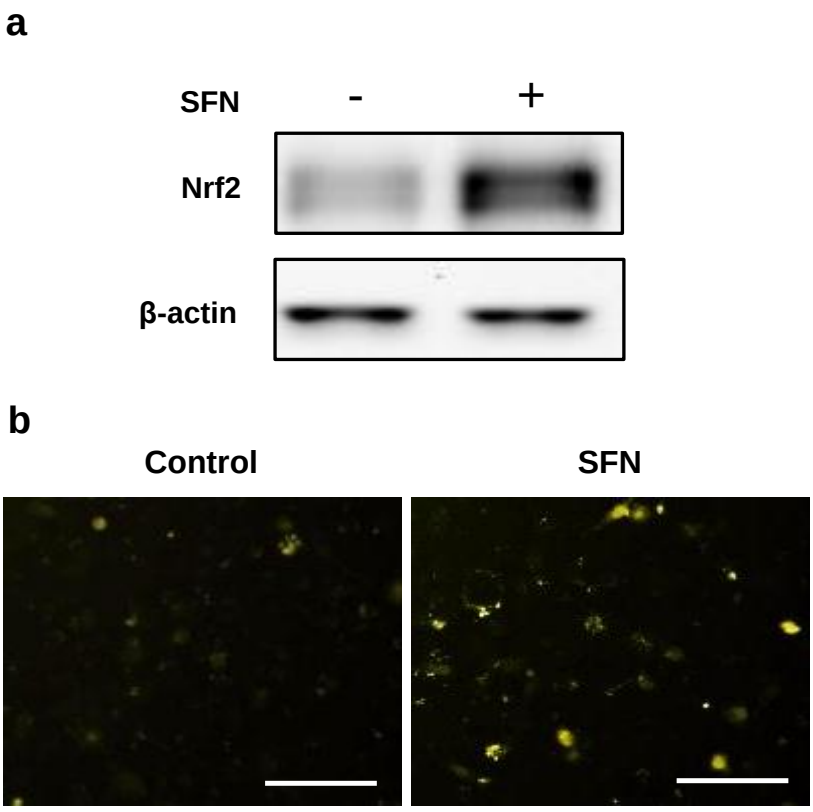

Fig. S2. Characterization of the Nrf2-YFP stable cell line. (a) Nrf2 expression in the Nrf2-YFP stable cell line was analyzed by immunoblot. β-actin was used as loading control. (b) Fluorescence characterization of Nrf2 induction in the Nrf2-YFP stable cell line. The cells were treated with 5 μM sulforaphane. Nrf2 nuclear accumulation was monitored. Scale bar, 100 μm.

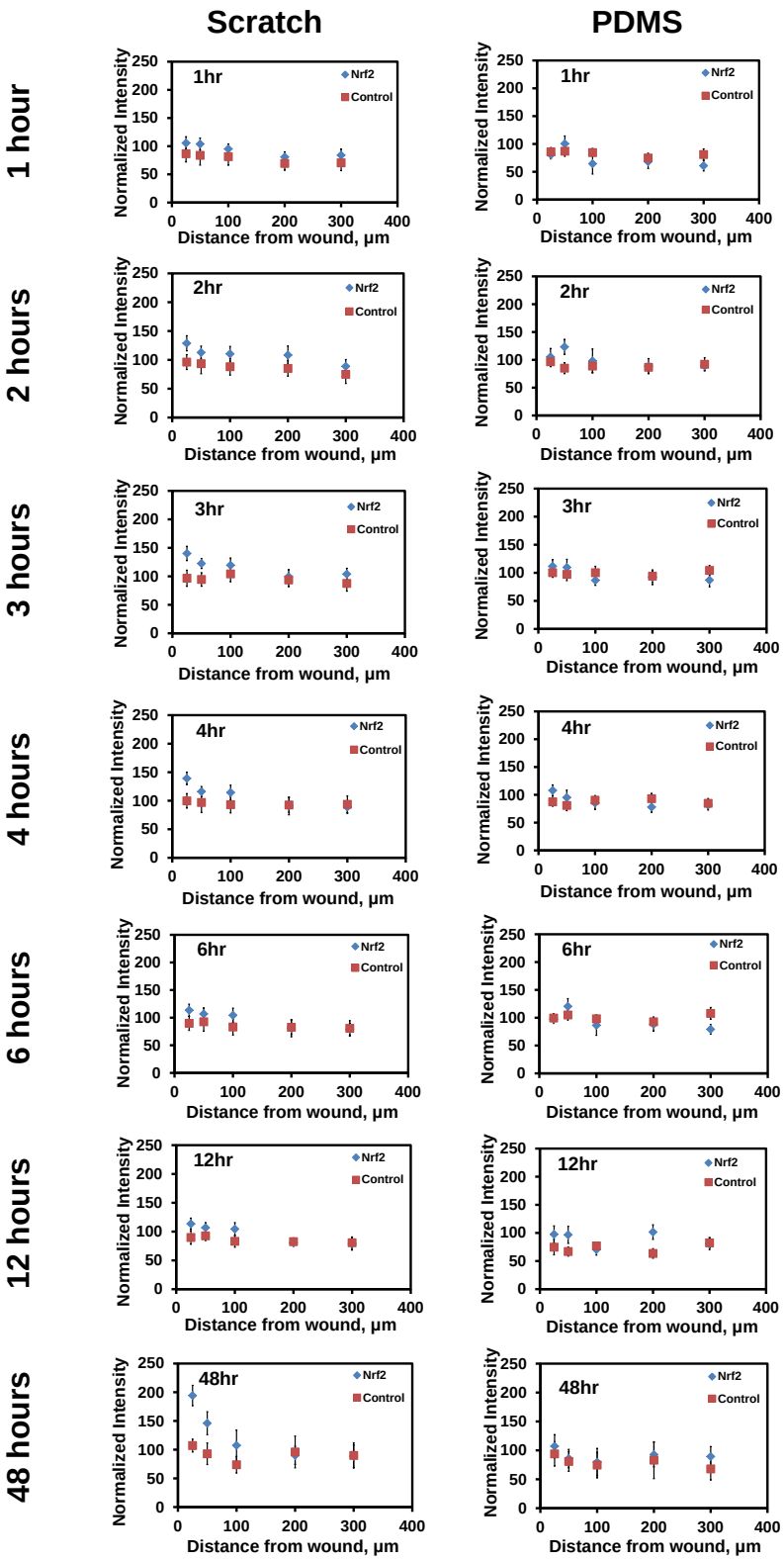

Fig. S3. Comparison of the spatial intensity distribution at different time points in the scratch and PDMS assays. Nrf2-YFP and control YFP stable cell lines were tested.

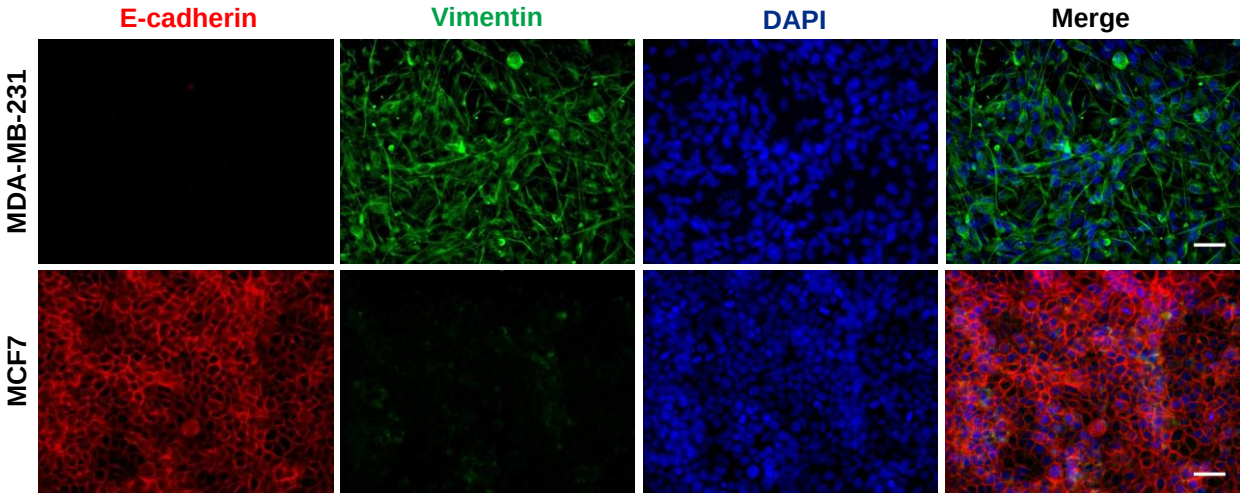

Fig. S4. Immunostaining of epithelial and mesenchymal biomarkers. (a) MDA-MB-231 cells, which display mesenchymal behaviors, show high vimentin and low E-cadherin expressions. MCF-7 cells, which display epithelial behaviors, show low vimentin and high E-cadherin expressions. Scale bars, 50 μm.

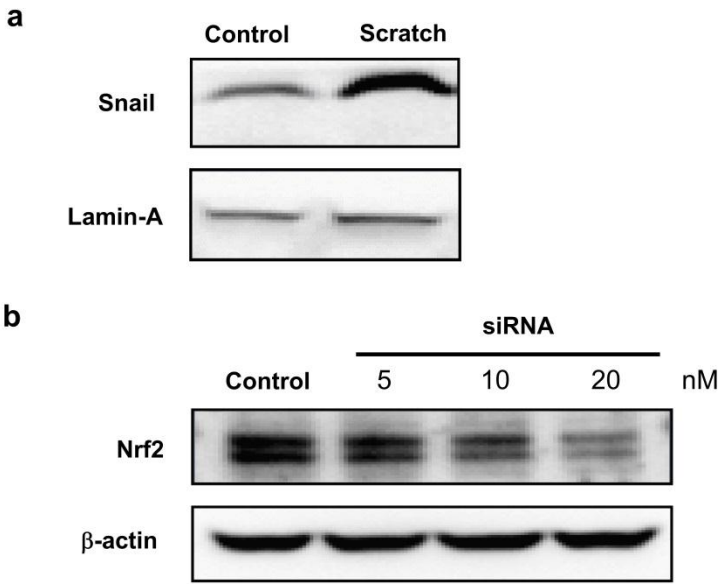

Fig. S5. Characterization of injury-induced EMT and Nrf2 siRNA in MCF7 cells. (a) The levels of Snail and Lamin-A protein were tested by immunoblot. (b) Nrf2 suppression at different siRNA concentrations. Cells were transfected with either scrambled siRNA or siRNA against Nrf2. Immunoblot was measured at 48 hours post-transfection.

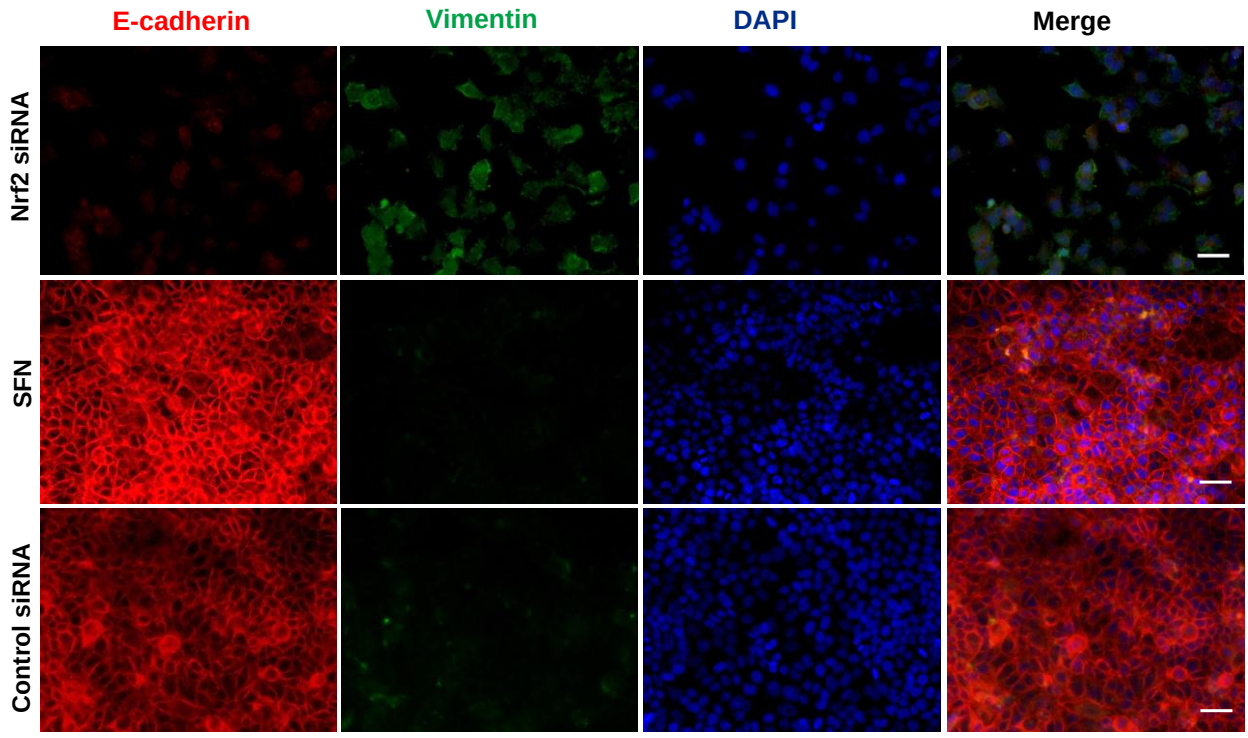

Fig. S6. Effect of Nrf2 on cell behaviors in intact monolayer. Cells were treated with 5 μm or transfected with Nrf2 siRNA. Control siRNA was included as control. The levels of E-cadherin and vimentin were measured. DAPI was used as counterstain. Scale bars, 50 μm.

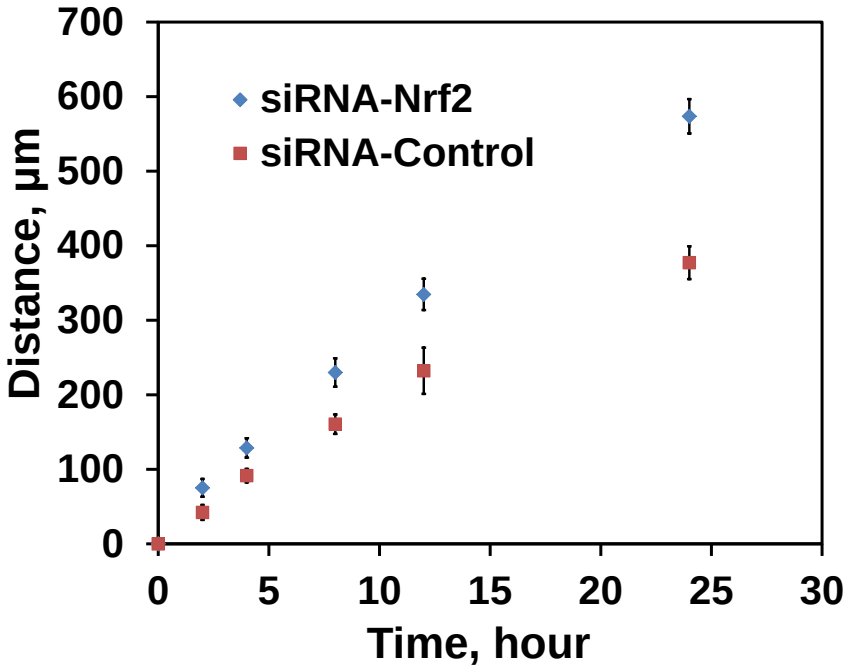

Fig. S7. Effect of Nrf2 suppression by siRNA on the migration rate of the wound leading edge.

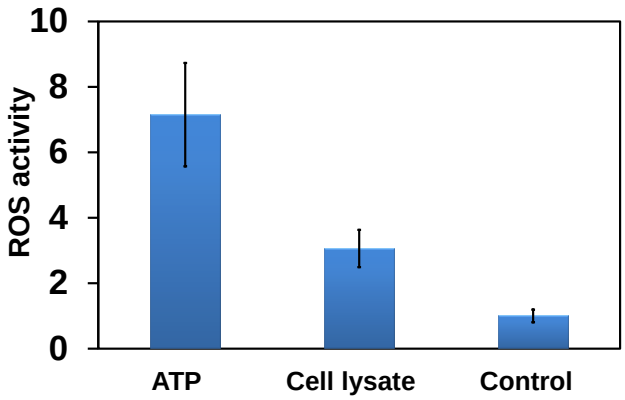

Fig. S8. Induction of the ROS level in the cell monolayer by ATP and cell lysate. Control represents loading of cell culture media to the cell monolayer.