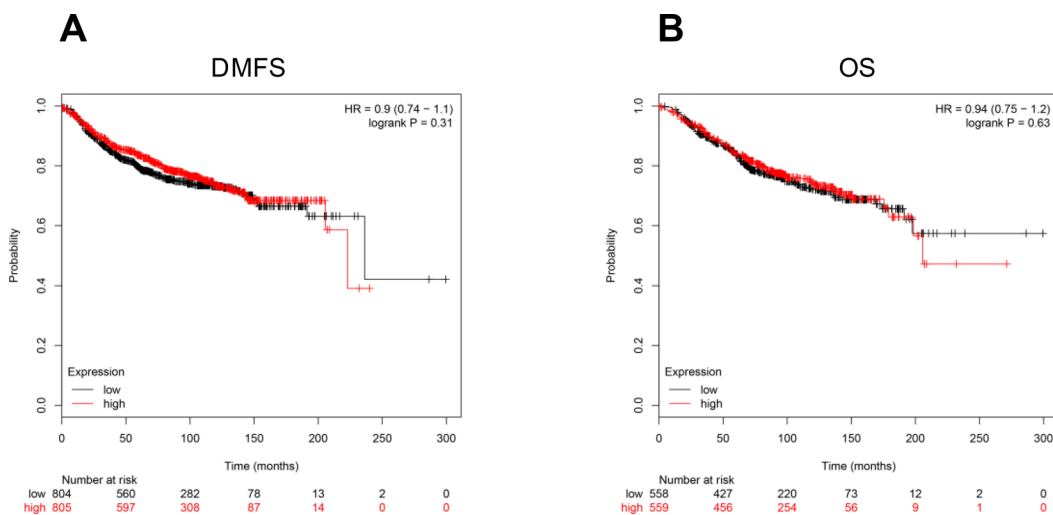
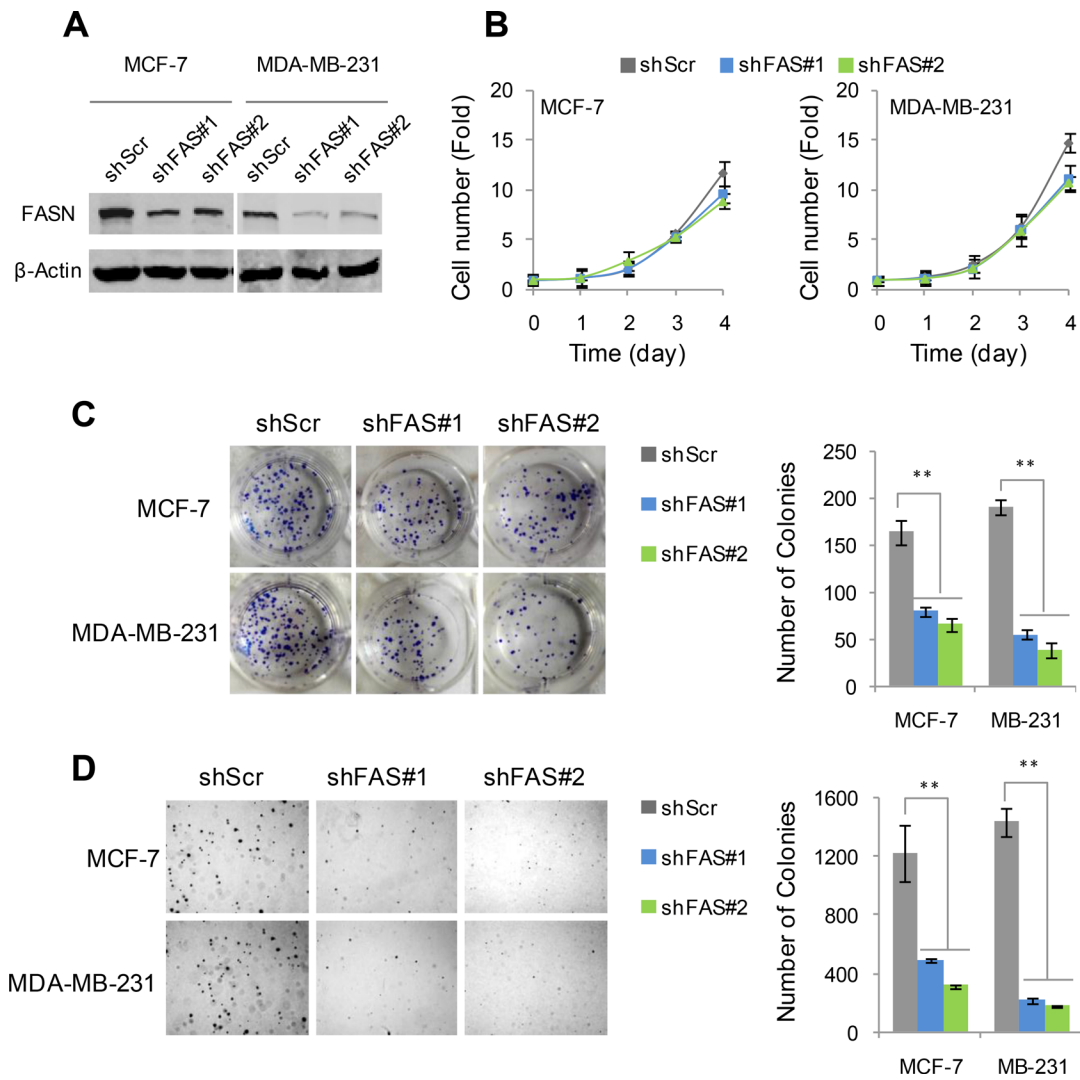


NADPH accumulation is responsible for apoptosis in breast cancer cells induced by fatty acid synthase inhibition

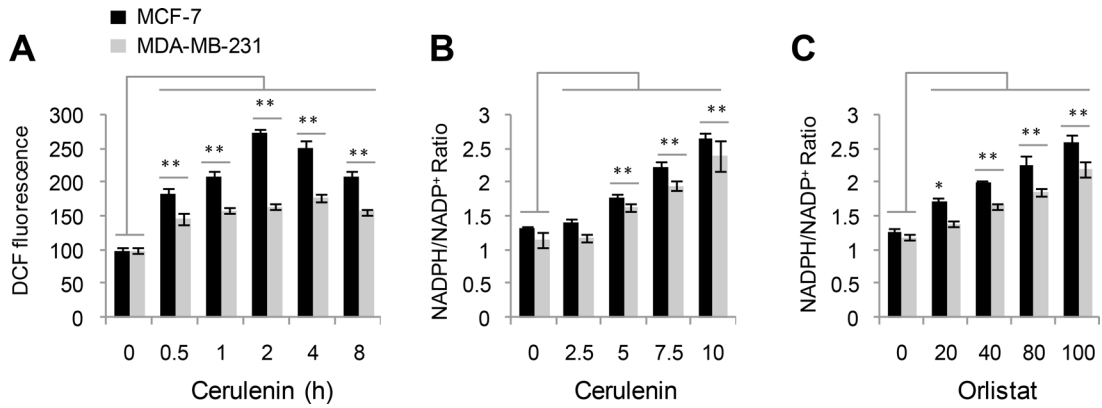
Supplementary Materials



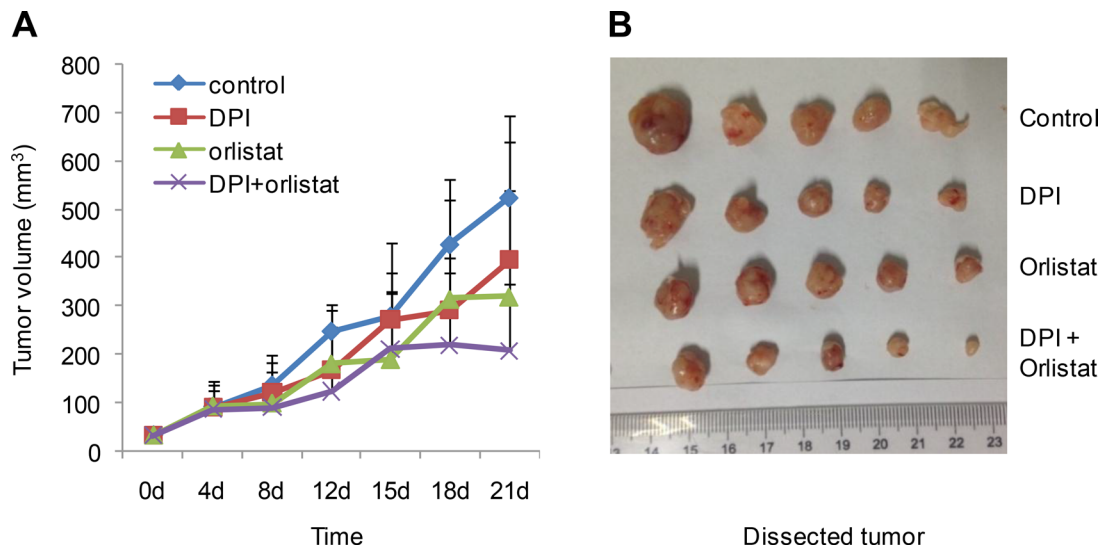
Supplementary Figure 1: Effects of FAS on breast cancer patients' overall survival (OS) and distance metastasis free survival (DMFS). The plotted data in the Kaplan-Meier survival curves for FAS were obtained in the website: www.kmplot.com.



Supplementary Figure 2: Effects of FAS knockdown on growth of breast cancer cells. (A) Western blots of FAS knockdown effect in MCF-7 and MDA-MB-231 cells. Cells, termed the adapted shFAS cells, survived shFAS-induced apoptosis after passages. (B) Growth rate of the adapted shFAS cancer cells. (C) The colony formation ability of the adapted shFAS cancer cells in 2D cell culture. (D) The colony formation ability of the adapted shFAS cancer cells in 3D soft agar cell culture. Error bar indicates \pm SE ($n = 3$). * $p < 0.05$; ** $p < 0.01$ (t -test).



Supplementary Figure 3: Effects of FAS inhibitors on cellular ROS and NADPH/NADP⁺. (A) Cerulenin induced time-dependent ROS generation in MCF-7 and MDA-MB-231 cells. ROS levels were measured after cells were treated with 10 μ M of cerulenin or 100 μ g/ml of orlistat for different times as indicated. (B and C) Cerulenin and orlistat induced concentration-dependent increase in NADPH/NADP⁺ ratio in MCF-7 and MDA-MB-231 cells. NADPH/NADP⁺ ratios were measured after cells were treated with different concentrations of cerulenin or orlistat for 2 h. Error bar indicates \pm SE ($n = 3$). * $p < 0.05$; ** $p < 0.01$ (t -test).



Supplementary Figure 4: Effects of orlistat and DPI on the *in vivo* killing of breast cancers. (A) Tumor growth curves of MDA-MB-231 cells in a xenograft model with different treatment as indicated. (B) The images of dissected tumor on day 20 after treatment drugs.