

Supplementary Information

Supplementary Figure S1. Dietary-induced obesity promotes breast cancer tumorigenesis. 2×10^5 4T1 mammary adenocarcinoma cells were injected into the mammary fat pad (mfp) of obese and control mice. Tumor growth was monitored twice per week. **(A)** Mammary tumors growth in BALB/c female mice fed with high fat diet (HFD) or normal diet (ND). **(B)** Survival rate of BALB/c female mice fed with HFD or ND. The data represent mean \pm SD (10 mice/group). *, $P < 0.05$.

Supplementary Figure S2. Higher levels of circulating TNF α and VEGF in obese mice. **(A, B)** Circulating TNF α was detected by ELISA (R&D system) in 16-week old diet-induced (left) and genetic (right) obese mice. **(C, D)** Circulating VEGF was detected by ELISA (R&D system) in 16-week old diet-induced (left) and genetic (right) obese mice.

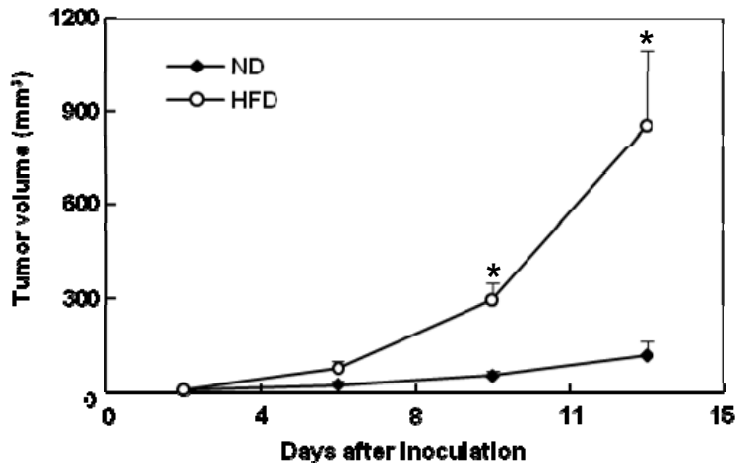
Supplementary Figure S3. Inhibitors of the TNF α /IKK β /mTOR/VEGF pathway block obesity-mediated tumorigenesis. High-fat diet (HFD)-induced obesity mice and control mice with mammary tumors were prepared as described in Figure 1 and then treated with or without aspirin **(A)**, rapamycin **(B)**, or bevacizumab **(C)**. Tumor-bearing mice were administered aspirin at 120 mg/kg/day by subcutaneously injection; rapamycin at 5 mg/kg twice per week by intraperitoneal injection; and bevacizumab at 10 mg/kg once per week by intravenously injection (10 mice/treatment group). Representative images of immunofluorescence staining of tumor tissues stained with indicated antibodies. The relative fluorescence intensity from the images is shown below. The data represent the mean \pm SD; *, $p < 0.05$.

Supplementary Figure S4. Inflammatory infiltration analysis of mammary tumors. (A) High-fat diet (HFD)-induced obesity mice and control mice with mammary tumors were prepared as described in Figure 1 and then treated with aspirin, rapamycin (Rapa), or bevacizumab (Bev). Tumor-bearing mice were administered aspirin at 120 mg/kg/day by subcutaneously injection; rapamycin at 5 mg/kg twice per week by intraperitoneal injection; and bevacizumab at 10 mg/kg once per week by intravenously injection (10 mice/treatment group). (B) MMTV-neu mice were fed with high-fat diet or normal diet and treated with indicated drugs as described in (A). Representative images of immunofluorescence staining of tumor tissues stained with CD45 antibodies. The relative fluorescence intensity from the images is shown on the right. The data represent the mean \pm SD; *, $p < 0.05$.

Supplementary Figure S1

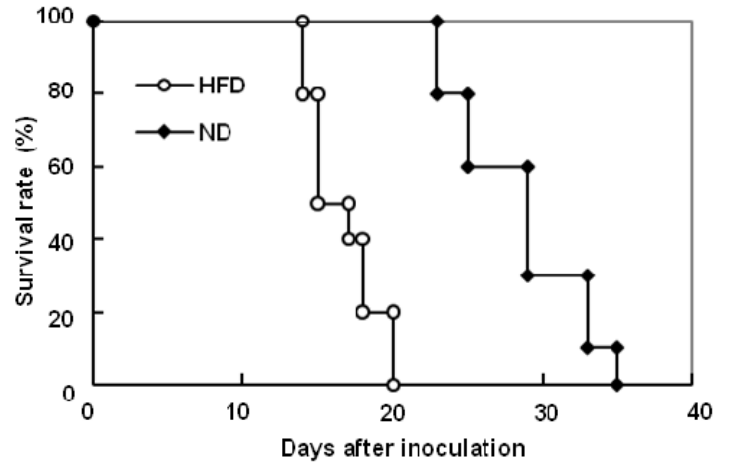
A

4T1



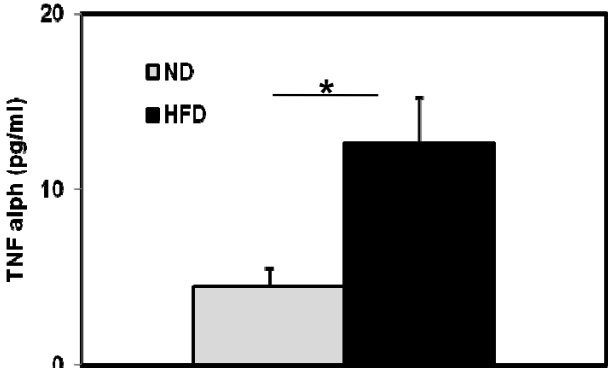
B

4T1

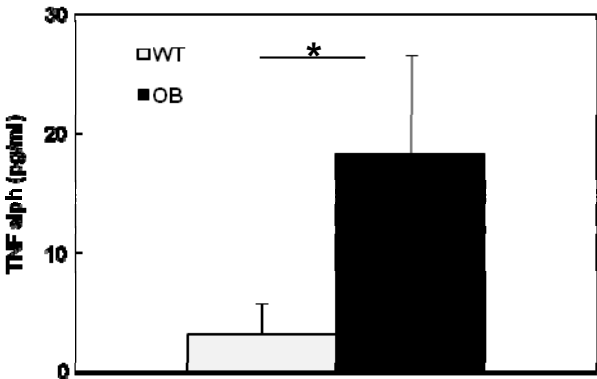


Supplementary Figure S2

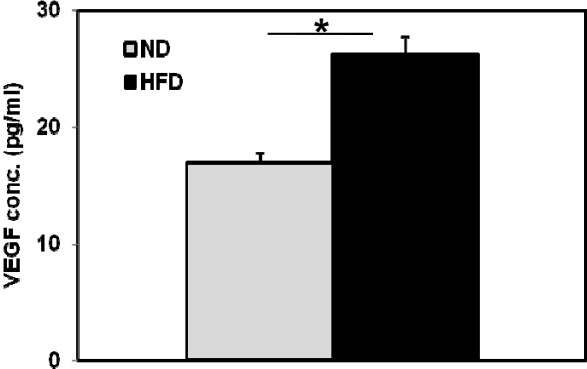
A



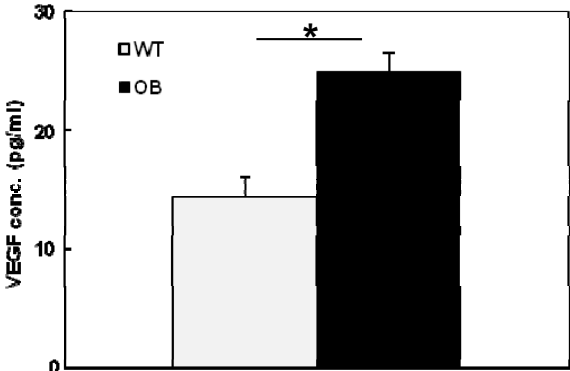
B



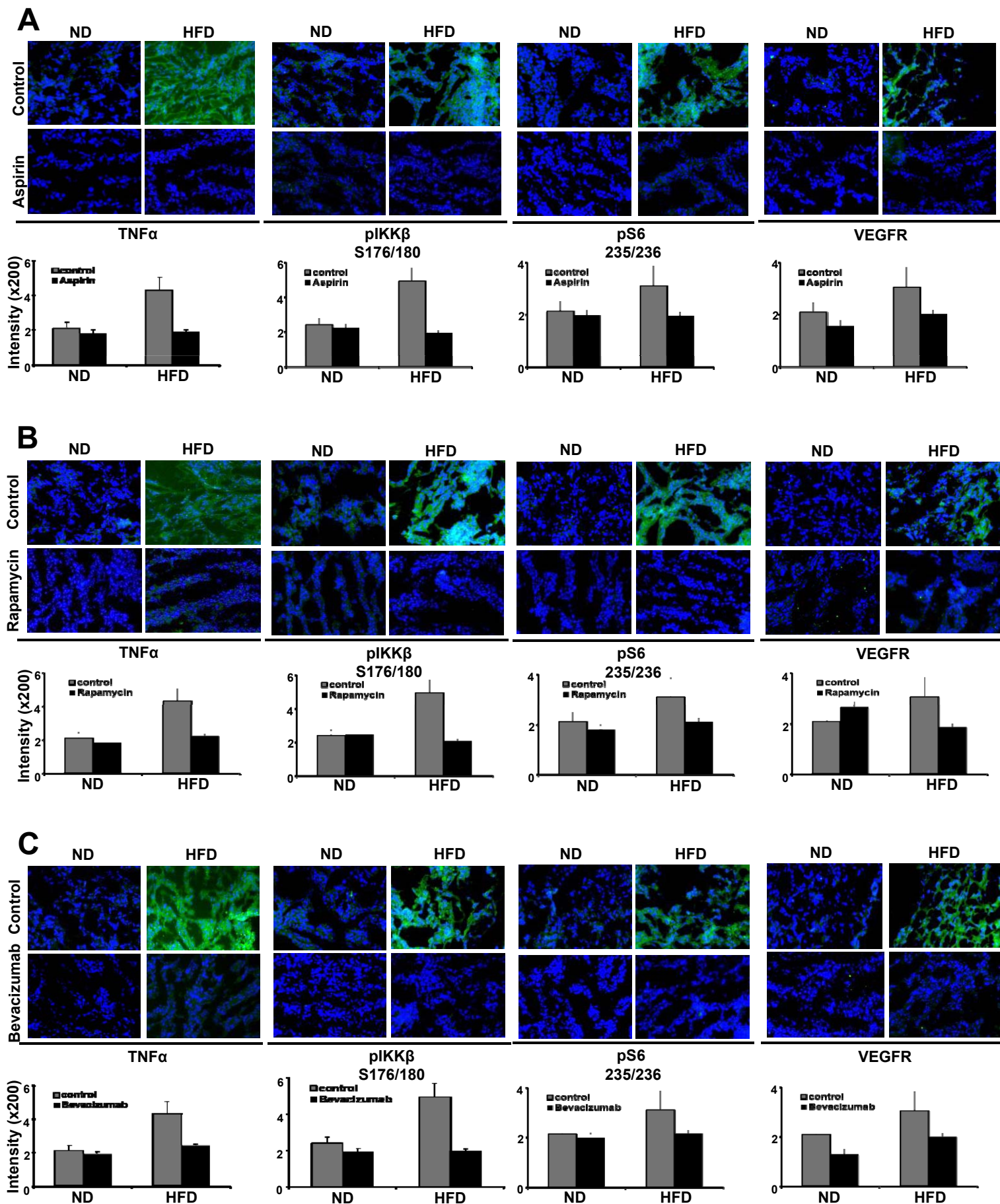
C



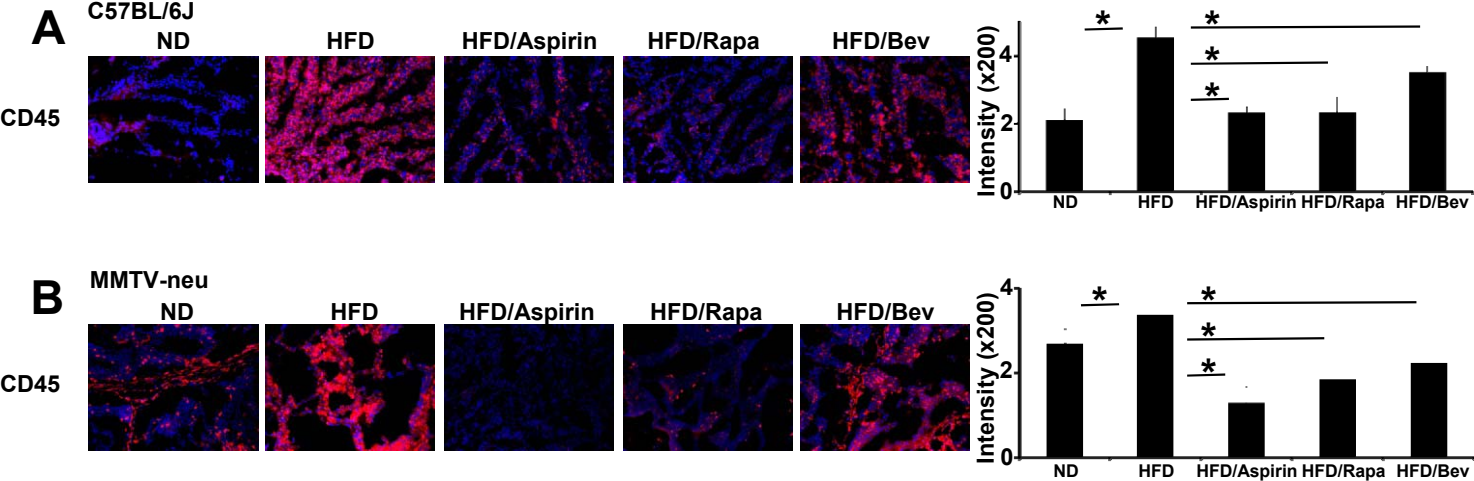
D



Supplementary Figure S3



Supplementary Figure S4



Supplementary Table S1

Product #	HFD		ND	
	(Research Diets: D12492)^a		(Teklad Global Diets: #2919)^b	
	gm%	kcal%	gm%	kcal%
Protein	26.2	20	19	23
Carbohydrate	26.3	20	44.9	55
Fat	34.9	60	9	22
Total		100		100

^{a, b} The information was obtained from the diet supplier.