

Figure S1. The validation of five hub genes in BC patients from TCGA-BC dataset. (A-E) The association between the mRNA expression level of HSD11B1 (A), NEDD9 (B), SAA2 (C), H2D2A (D) or TNFSF4 (E) and clinical stage in TCGA-BRCA dataset.







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**Figure S2.** The association between five hub genes and clinical outcome in BC patients. (A-E) The associations between HSD11B1 (A), NEDD9 (B), SAA2 (C), H2D2A (D) or TNFSF4 (E) and overall survival in BC patients from TCGA-BC dataset. (F-G) The forest plot exhibiting the correlation between six MDGs and overall survival in infiltrating ductal carcinoma or infiltrating lobular carcinoma patients from TCGA-BC dataset based on univariable Cox regression analysis.







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**Fig S3. BEND5 suppresses proliferation, migration and invasion in ZR75-1 cells.** (A) ZR75-1 cells were transfected with FLAG-tagged BEND5 or empty vector and cultured for a specified time. CCK8 assays were used to detect cell numbers, and immunoblot was used to detect the expression of BEND5 in MDA-MB-231 cells. β-actin was used as a loading control. (B) Colony formation assays for ZR75-1 cells transfected as in (A). (C and D) Wound-healing assays and transwell assays for ZR75-1 cells transfected as in (A). (C and D) Wound-healing assays and transwell assays for ZR75-1 cells transfected as in (A). (C and D) Wound-healing assays and transwell assays for ZR75-1 cells transfected as in (A). (C and D) Wound-healing assays and transwell assays for ZR75-1 cells were transfected with control shRNA, BEND5 shRNA or BEND5 shRNA plus shRNA-resistant BEND5 (BEND5-R). CCK8 assay was used to detect cell numbers, and immunoblot was used to detect the expression of BEND5. (F) Colony formation assays for ZR75-1 cells transfected as in (E). (G and H) Wound-healing assays and transwell assays for ZR75-1 cells transfected as in (E). Data shown are mean ± SD of triplicate measurements with similar results (\**P* < 0.05, \*\**P* < 0.01 versus empty vector).

## Figure S4



**Fig S4. BEND5 inhibits Notch signaling-induced BC cell proliferation, migration and invasion.** (A) ZR75-1 cells were transfected with empty vector or FLAG-tagged BEND5 and treated with/without Notch signaling activator DLL4 (10 ng/ml). Immunoblot was used to detect Notch pathway downstream targets and EMT-related proteins. (B and C) CCK8 assays and colony formation assays for ZR75-1 cells transfected and treated as in (A). (D and E) Wound-healing assays and transwell assays for ZR75-1 cells transfected and treated as in (A). Data shown are mean  $\pm$  SD of triplicate measurements with similar results (\*P < 0.05, \*\*P < 0.01).