**Figure S1.** (A) Mammosphere formation efficiency (MFE) in MDA-231 cells exposed to varying concentrations of AD-01. (B) Primary (1), secondary (2) and tertiary (3) mammosphere formation in the MDA-231 cell line following 1 nM AD-01 treatment (black bar – control; grey bar – AD-01 treatment). See Fig. 1 for further description of the methods. (C) 1 and 2 mammosphere formation in the MCF-7 cell line versus MCF-7 cells stably overexpressing FKBPL (D2). Data points are mean ± SEM. n≥3. * p<0.05, ** p<0.01, *** p<0.001 (one-way ANOVA)

**Figure S2.** MDA-231 cells treated with the gamma secretase inhibitor, compound E (E) (0.025 µM, 0.25 µM, 1.25 µM), or AD-01 (0.025 nM), alone or in combination. Data points are mean ± SEM. n≥3. * p<0.05, ** p<0.01, *** p<0.001 (one-way ANOVA)

**Figure S3.** AD-01 is not cytotoxic. No change in surviving fraction following AD-01 treatment in both MDA-231 and MCF-7 cells was observed.

**Figure S4.** (A) Protein levels of Nanog and Oct4 in MDA-231 cells following treatment with HA or AD-01, alone or in combination. (B) Protein levels of Nanog and Oct4 in MDA-231 cells following transfection with FKBPL siRNA (siFKBPL) or NT siRNA (siNT) evaluated by immunofluorescence.

**Figure S5.** High FKBPL and low Nanog expression correlates with better DMFS and shows a trend towards better RFS. Samples with opposing FKBPL and Nanog expression (high FKBPL/low Nanog and low FKBPL/high Nanog) were analysed using microarray data from publically available data set (GSE7390). Samples were stratified based on median expression values of NANOG and FKBPL. Kaplan-Meier survival curves of breast cancer patients (n=94) presented.

**Figure S6.** High FKBPL and low Sox2 expression shows a trend towards better patient survival. Samples with opposing FKBPL and Sox2 expression (high FKBPL/low Sox2 and low FKBPL/high Sox2) were analyzed using microarray data from publically available data set (GSE7390). Samples were
stratified based on median expression values of Sox2 and FKBPL. Kaplan-Meier survival curves of breast cancer patients (n=104) presented.

**Figure S7.** High FKBPL and low Oct4 expression shows a trend towards better patient survival. Samples with opposing FKBPL and Oct4 expression (high FKBPL/low Oct4 and low FKBPL/high Oct4) were analyzed using microarray data from publically available data set (GSE7390). Samples were stratified based on median expression values of Oct4 and FKBPL. Kaplan-Meier survival curves of breast cancer patients (n=104) presented.