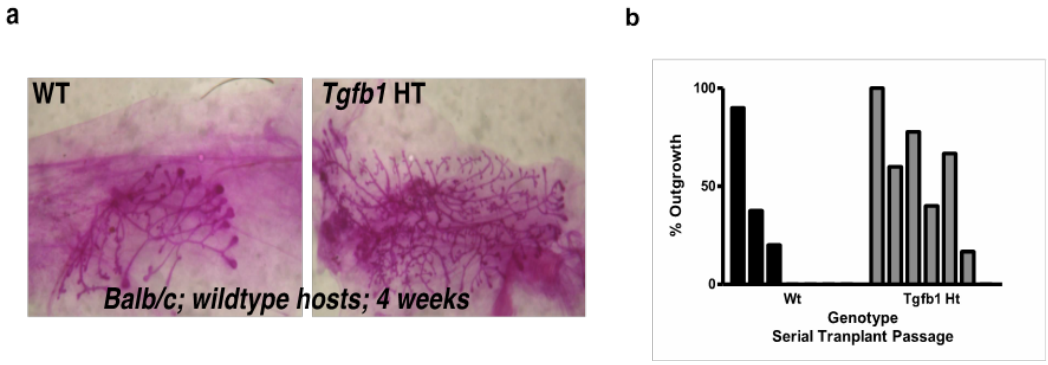


Figure S1: *Tgfb1* WT and HT mammary serial transplantation capacity. Data corresponds to Figure 1. **(A)** Mammary gland whole mounts from *Tgfb1* WT and HT littermates illustrate mammary ductal growth in *Tgfb1* HT mice. Low-magnification views of mammary gland whole mounts from 4-week-old mice show that *Tgfb1* WT epithelial outgrowth has reached the lymph node (LN), whereas in Tgfb1 HT the fat pad is over two-thirds full. **(B)** Serial transplantation of *Tgfb1* WT and HT fragments transplanted into WT host in which the mammary epithelium has been surgically removed were allowed six weeks to grow. Serial transplantation of mammary fragments was performed until exhaustion and/or outgrowth percentage decreased more than 20%. Transplantation of WT epithelium was exhausted in 3 generations whereas that of HT epithelium persisted for 6 generations.

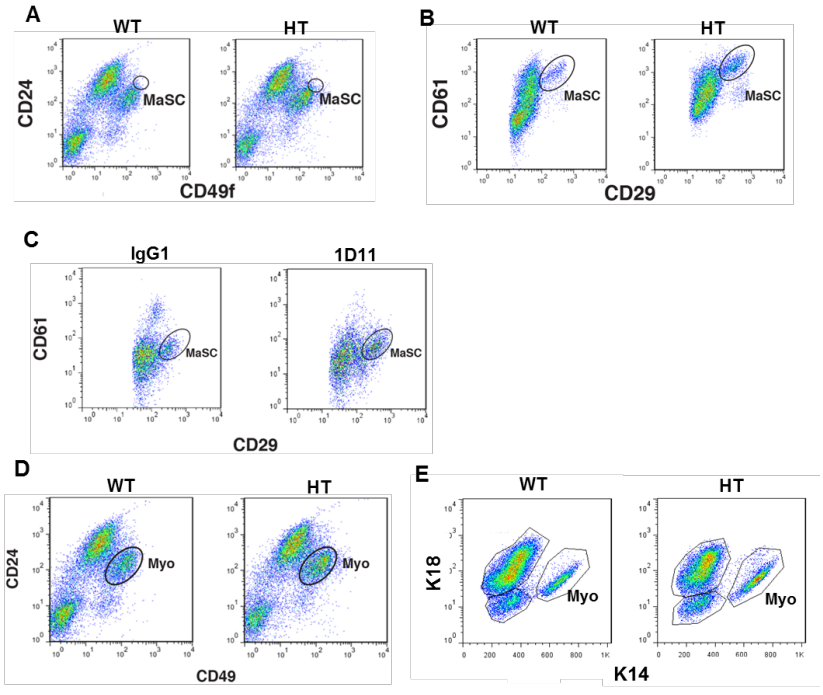


Figure S2: Representative FACS profiles of *Tgfb1* WT and HT MEC. Data corresponds to Figure 1. **(A and B)** Representative FACS plots for Lin-/Cd24med/Cd49fhi (A) and Lin-/Cd29high/Cd24+/Cd61+ (B) cell, corresponding to quantitation shown in Fig. 1B and 1C, respectively. **(C)** Representative FACS profiles for lineage markers Lin-/Cd29high/Cd24+/Cd61+ of MEC isolated from mice treated with 1D11 or control antibodies represented on Fig. 1F. **(D)** FACS profiles of MEC isolated from *Tgfb1* WT and

HT mice using Lin-/Cd24/Cd49f markers to identify CD24+/CD49fhi myoepithelial population quantified in Fig. 2A. **(E)** Representative FACS profiles of *Tgfb1* WT and HT MEC using K14 and K18 to identify K18+ luminal and K14+ myoepithelial cells quantified in Fig. 2B.

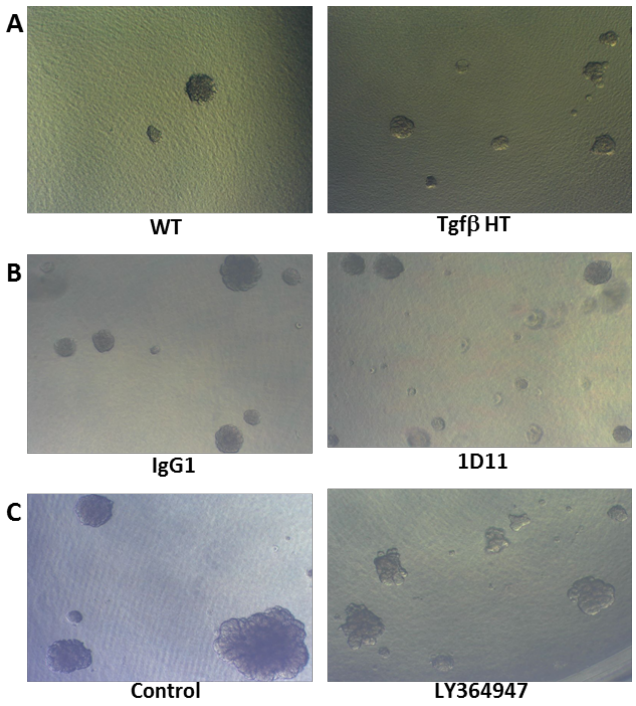


Figure S3: Representative phase contrast images of mammospheres. Data corresponds to Figure 1. (**A**) Mammospheres formed from *Tgfb1* WT and HT MEC (corresponding to Fig. 1E). (**B**) Mammospheres formed from MEC isolated from mice treated with TGFβ neutralizing antibody 1D11 compared to MEC from mice treated with control IgG (corresponding to Fig. 1G). (**C**) Mammospheres formed from MEC following treatment with TGFβ small molecule inhibitor Ly36497 (corresponding to Fig. 1H).

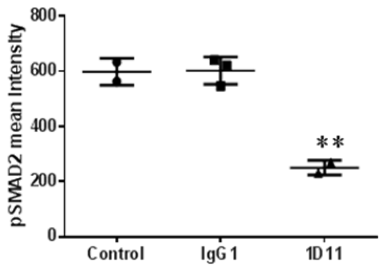


Figure S4: Phosphorylated SMAD2 (pSMAD2) intensity in mammary epithelial in mice treated with TGFβ neutralizing antibody. Mammary gland sections from TGFβ neutralizing antibody-treated or IgG control treated mice were immunostained for pSMAD2 and nuclear reactivity was measured. As expected, bi-weekly treatment with 1D11 TGFβ neutralizing antibodies for 4 weeks significantly

decreased epithelial nuclear pSMAD compared to isotype IgG treated mice or non-treated controls. **P<0.01. Data show means and SD of the three experiments (data points shown).

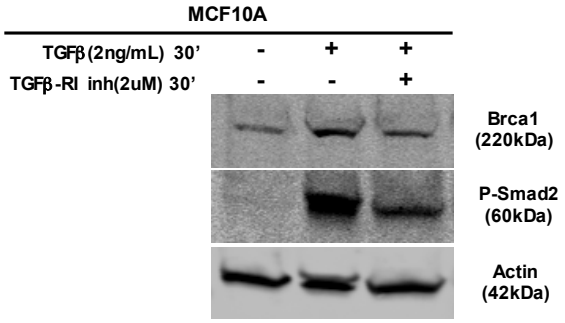


Figure S5: Representative immunoblot for Figure 4. Representative immunoblot demonstrating concomitant action of TGFβ and its inhibition by Ly364957 on BRCA1 protein abundance and SMAD phosphorylation in MCF10A cells. Data is representative of that analyzed in Fig. 4.

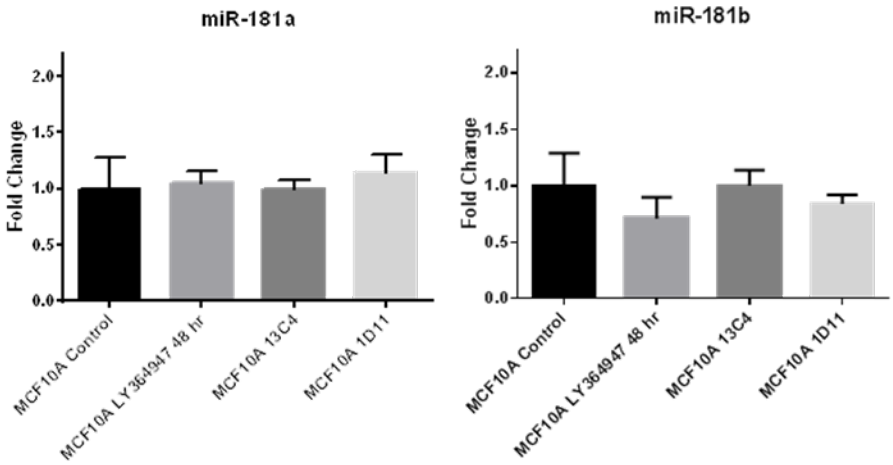


Figure S6: Analysis of miR-181. Expression of miR-181a or miR-181b in MCF10A cells treated with TGFβ type 1 receptor kinase inhibitor LY364947 or neutralizing antibody 1D11 or controls. Data are mean and S.E. of three biological replicates. Data correspond to experiments shown in Fig. 6.

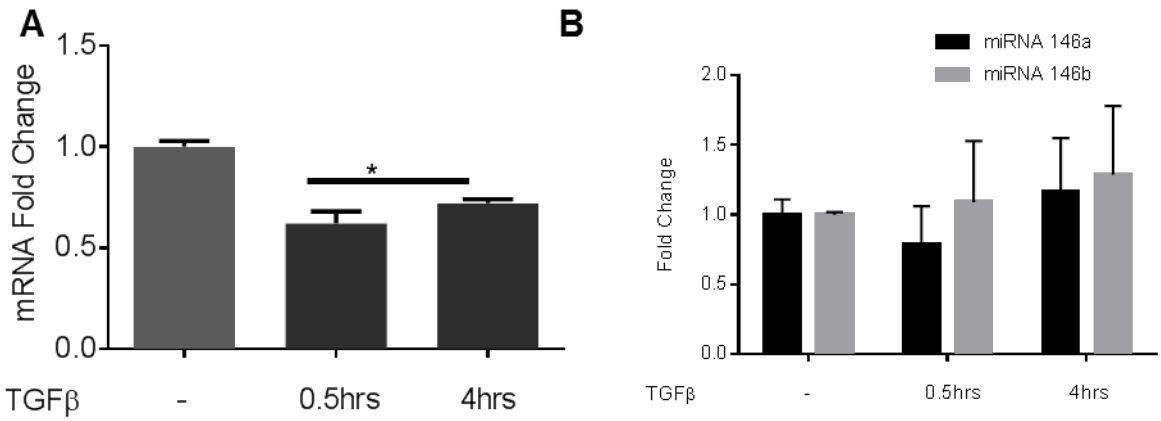
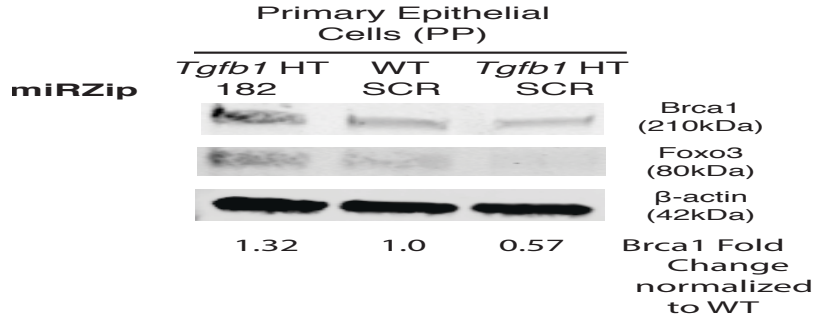


Figure S7: Analysis of miR-146. (A) Treatment of MCF10A with TGFβ suppresses miR-182 as measured by qRT-PCR. * $p<0.05$ determined using ANOVA. **(B)** Expression of mIR-146a (black) or mIR-146b (gray) are unaffected in MCF10A cells treated with TGFβ. Data are mean ±S.E.M. of three biological replicates. Data correspond to that in Fig. 7



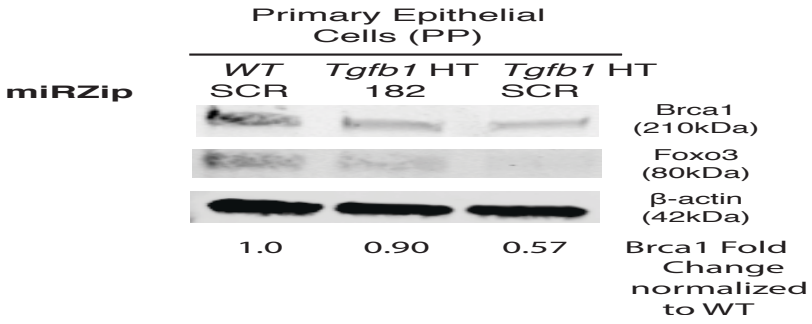


Figure S8: Effects of miRZIP-182 expression in MEC. (A). Representative immunoblot quantified in Fig. 7F of Brca1 and Foxo3 from *Tgfb1* WT and HT MEC expressing either the scrambled (SCR) or miRZIP-182 (182). β-actin demonstrates loading control. **(B)** miR-182 abundance measured by qRT-PCR in mammospheres arising from miRZIP-182 expressing cells compared to HT MEC expressing the miRZIP-SCR. Data are means ± S.D. from two biological replicates. (**C)** The percentage of cells staining positive for the proliferation marker Ki-67 in mammospheres arising from miRZIP-182 expressing *Tgfb1* HT MEC compared to miRZIP-SCR expressing HT MEC. Data are means ± S.D. from 17 mammospheres, pooled from two independent experiments. NS, non-significant determined by unpaired Student t-test. Data correspond to Fig. 7.

RT-qPCR	Forward	Reverse
Mouse		
Brca1 9-10	5'- CCCTCAAGAAGCTGGAGATG-3'	5'-TGCCCTCAGAAAACTCACAA -3'
Brca1 20-22	*5'-TGGTCACACTTTGTGGAAACA -3'*	*5'-GCCGTCCAAATTCAAGAAGTA -3'*
Sparc 2-3	*5'-TGTCCTGGTCACCTTGTACG-3'*	*5'-CAGGCGCTTCTCATTCTCAT-3'*
Foxo3 1-2	5'-AGTGGATGGTGCGCTGTGT-3'	5'-CTGTGCAGGGACAGGTTGT-3'
Notch 1	5'-GTGCCTGCCCTTTGAGTCTT-3'	5'-GCGATAGGAGCCGATCTCATTG-3'
Prc2	5'-CCCTGGAAGAAGCAAAAGAA-3'	5'-AATGGCCTTTCCTTGCAATA-3'
Procr	5'-CTCTCTGGGAAAACTCCTGACA-3'	5'-CAGGGAGCAGCTAACAGTGA-3'
Human		
BRCA1 9-10	5'-AAGAGGAACGGGCTTGGAA -3'	5'-CACACCCAGATGCTGCTTCA -3'
BRCA1 20-21	5'-ACAGCTGTGTGGTGCTTCTGTG-3'	5'-CATTGTCCTCTGTCCAGGCATC -3'
SPARC 4-5	5'-TGTGGGAGCTAATCCTGTCC-3'	5'-ATGGGGGTGTTGTTCTCATC-3'
FOXO3 1-2	5'-GATAAGGGCGACAGCAACAG-3'	5'-CCAGTTCCCTCATTCTGGAC-3'
GAPDH	5'-CAGCCTCCAGATCATCAGCA-3'	5'-TGTGGTCATGAGTCCTTCCA-3'

Table S1: Primers. The table provides the sequences of the mouse and human gene-targeted primers used in this study.