Figure S1

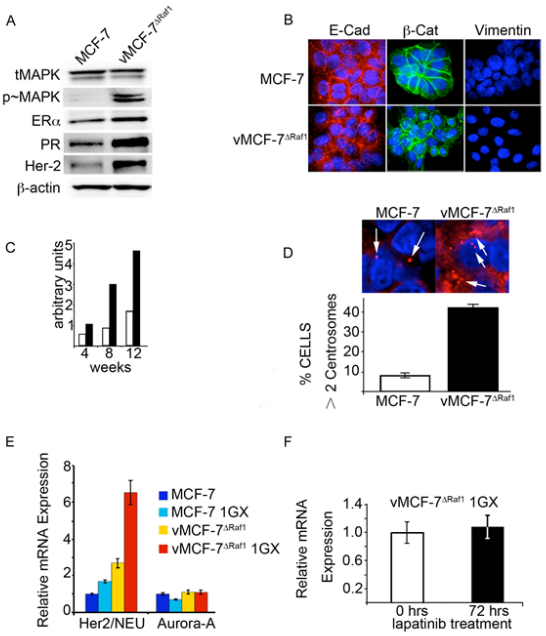

Figure S2

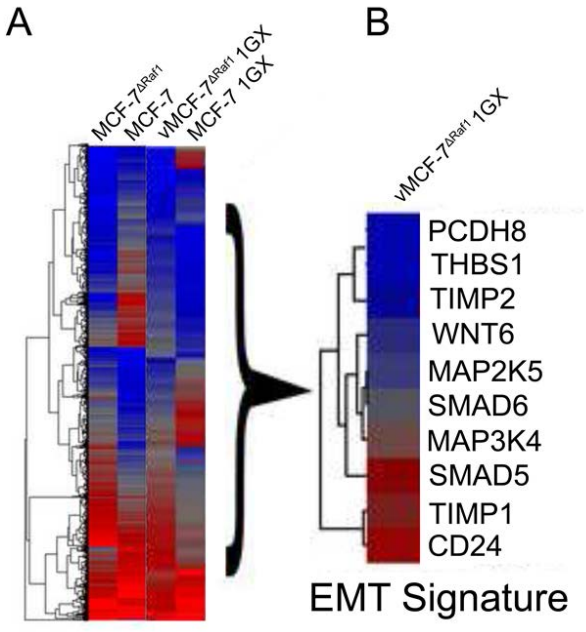

Figure S3

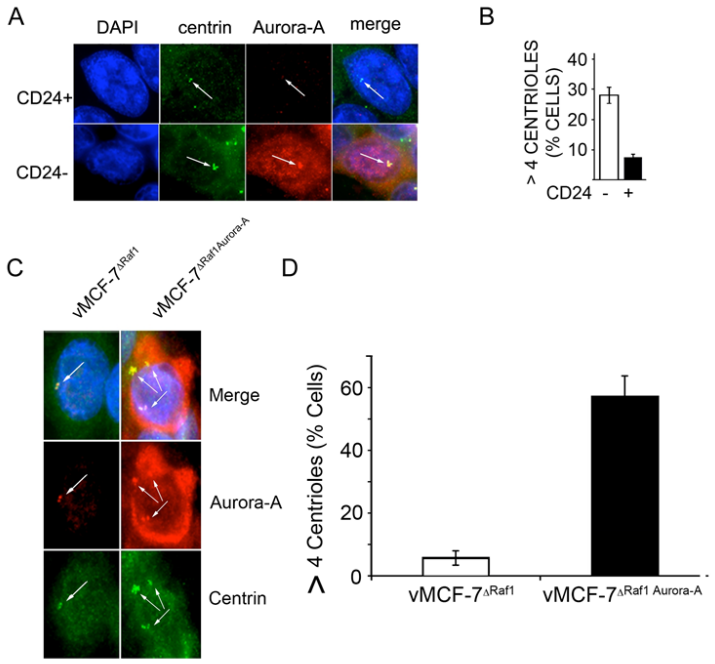

Figure S4

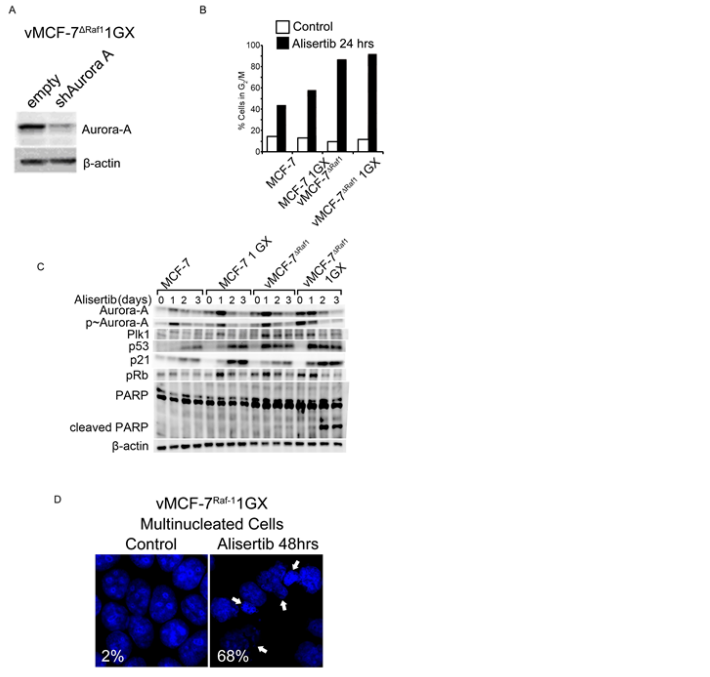

Figure S5

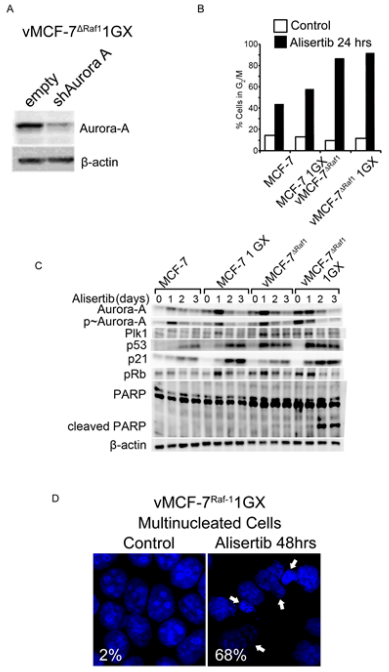

Figure S6

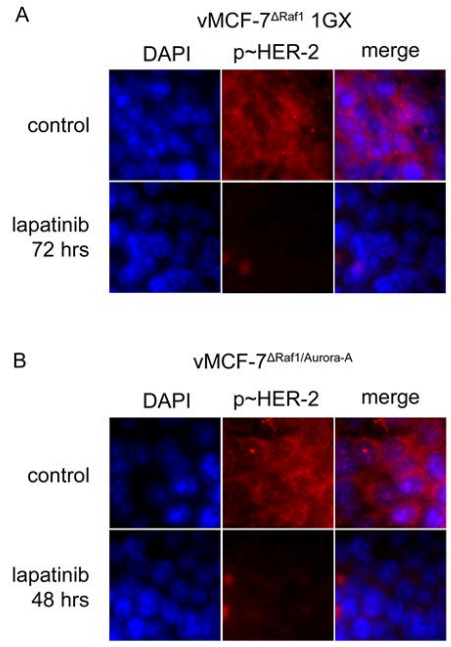

Figure S7

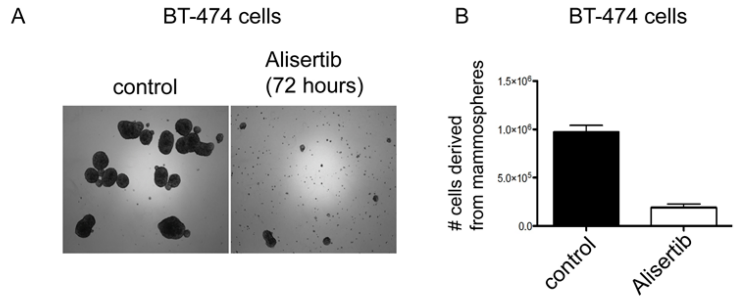

Figure S1. Molecular Characterization Of Breast Cancer Cells. (A) Immunoblot analysis of MCF-7 and vMCF-7$^{\Delta Raf\text{-}1}$ cells showing MAPK constitutive phosphorylation, expression of ER and PR and HER-2/Neu over-expression. (B) Immunofluorescence analysis showing expression of E-cadherin (red) and B-catenin (green) and lack of vimentin (green) in MCF-7 and vMCF-7$^{\Delta Raf\text{-}1}$ cells. DNA was labeled in blue with Hoechst dye. (C) Graph showing the area of tumor growth by *NIH Image J program* from three independent experiments. (D) Immunofluorescence analysis showing centrosome amplification in vMCF-7$^{\Delta Raf\text{-}1}$ xenografts. Centrioles were labeled in red with γ-tubulin and DNA was labeled in blue with Hoechst dye. Graph showing the percentage of cells with amplified centrosomes from three independent experiments (+/- s.d.). (E) Graph showing relative mRNA expression by real-time PCR of HER-2/Neu and Aurora-A genes in MCF-7 and variant cells from three independent experiments (+/- s.d). (F) Graph showing relative mRNA expression by real-time PCR of Aurora-A gene in vMCF-7$^{\Delta Raf\text{-}1}$1GX cells before and after treatment with 1μM lapatinib from three independent experiments (+/- s.d).

Figure S2. Transcriptome Analysis Of Breast Cancer Cells. (A) Heat map representing the unsupervised cluster analysis of global gene expression in MCF-7, MCF-7 1GX, vMCF-7$^{\Delta Raf\text{-}1}$ and vMCF-7$^{\Delta Raf\text{-}1}$1GX cells. (B) Heat map representing the identification of an EMT signature in vMCF-7$^{\Delta Raf\text{-}1}$1GX cells.

Figure S3. Characterization of Centrosome Phenotype In Breast Cancer Cells. (A) Immunofluorescence analysis showing the centrosome phenotype in CD24^{+} and CD24$^{-/low}$ cancer cells. The centrosome protein centrin was labeled in green, the mitotic kinase Aurora-A was labeled in red and DNA was labeled in blue with Hoechst dye. (B) Graph showing the percentage of CD24^{+} and CD24$^{-/low}$ cancer cells with amplified centrosomes from three independent experiments (+/- s.d). (C) Immunofluorescence analysis showing the centrosome phenotype in vMCF-7$^{\Delta Raf\text{-}1}$ and vMCF-7$^{\Delta Raf\text{-}1/Aurora\text{-}A}$ cells. The Centrosome protein centrin was labeled in green, the mitotic kinase Aurora-A was labeled in red and DNA was labeled in blue with Hoechst dye. (D) Graph showing the percentage of vMCF-7$^{\Delta Raf\text{-}1}$ and vMCF-7$^{\Delta Raf\text{-}1/Aurora\text{-}A}$ cells with amplified centrosomes (> 4 centrioles) from three independent experiments (+/- s.d.).

Figure S4. Moleular Inhibition Of Aurora-A Kinase Activity *In Vitro*. (A) Immunoblot analysis showing down-regulation of Aurora-A expression by an shRNA vector in vMCF-7$^{\Delta Raf\text{-}1}$ 1GX cells. (B) Graph displaying cell cycle analysis (FACS) of breast cancer cells showing that treatment with 1μM Alisertib for 24 hours arrested cells in the G2/M phase of the cell cycle. (C) Immunoblot analysis of MCF-7, MCF-7 1GX, vMCF-7$^{\Delta Raf\text{-}1}$ and vMCF-7$^{\Delta Raf\text{-}1}$ 1GX cells showing that treatment with 1μM Alisertib suppressed Aurora-A kinase activity, reduced PLK1 expression and activated the p53 mediated G1/S cell cycle checkpoint. Activation of apoptosis was detected by cleaved PARP only in vMCF-7$^{\Delta Raf\text{-}1}$ 1GX cells. (D) Immunofluorescence analysis showing the development of multinucleated cells following treatment with 1μM Alisertib of vMCF-7$^{\Delta Raf\text{-}1}$ 1GX cells.

Figure S5. Inhibition of p~HER-2/Neu in Breast Cancer Cells. (A) Immunofluorescence analysis showing inhibition of p~HER-2/Neu following treatment with 1μM Lapatinib of vMCF-7$^{\Delta Raf\text{-}1}$ 1GX cells. (B) Immunofluorescence analysis showing inhibition of p~HER-2/Neu following treatment with 1μM Lapatinib of vMCF-7$^{\Delta Raf\text{-}1/Aurora\text{-}A}$ cells.

Figure S6. Inhibition of Mammospheres Growth in BT-474 Breast Cancer Cells. (A) Light microscopy analysis showing inhibition of mammospheres growth derived from BT-474 breast cancer cells after treatment with 1μM Alisertib for 72 hours. (B) Graph showing the percentage of cells derived from mammospheres before and after treatment with 1μM Alisertib. Experiments were performed in triplicate (+/- s.d.).