

# You're Under Arrest, But Breast Cancer Is Not!

## Student Group Names Kept Anonymous

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**Breast cancer is a cellular disease, the result of aberrant cell growth starting in breast tissue. Breast cancer affects both men and women, the disease has many symptoms most of which occur as abnormalities in the breast tissue. Inherited mutations in the BRCA1 and BRCA2 genes, silencing of the 14-3-3-sigma gene, or the amplification and overexpression of the HER-2 gene can ultimately lead to breast cancer. Although it was known that families with a history of breast cancer were missing both BRCA proteins, that HER-2 is a proto-oncogene, and that 14-3-3-sigma play a significant role in G2 arrest the molecular mechanisms were unknown. This review will illuminate the biological functions of the BRCA proteins and why they cause cancer. The relationship between the 14-3-3-sigma gene, p53, and cell cycle arrest and its implications in breast cancer will also be analyzed as well as why many normal cells express HER-2 at low levels but in some forms of breast cancers the HER-2 is amplified and over expressed. A greater understanding of the genes involved in breast cancer will hopefully lead to more advanced treatments such as gene therapy.**

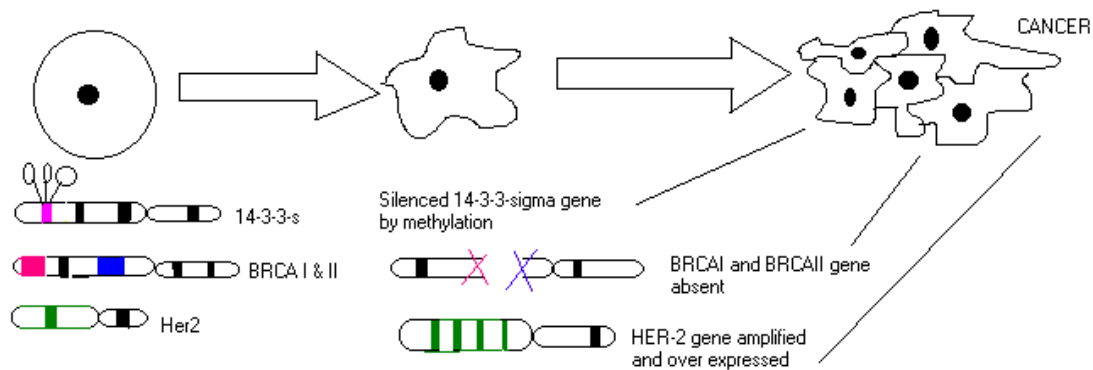


Figure 2: **Newly Revised Model Breast Cancer:** There are three new genes, which are involved with breast cancer. Cells that contain mutations in these genes can ultimately lead to breast cancer. The 14-3-3-sigma gene is silenced by methylation, BRCA I and II genes are absent, and the overexpression and amplification of Her2 all lead to breast cancer.

