

Original Paper

BRCA1 gene expression in DMBA induced breast cancer in rats

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Abstract

Background and Objective: Breast cancer is one of the most frequent malignancies among women. This study was done to determine the BRCA1 gene expression in 7,12-Dimethylbenz(a)anthracene (DMBA) induced breast cancer in rats.

Materials and Methods: In this experimental study, the breast cancer was induced by DMBA in Sprague dawley rats. After tumors arise, cell cultures were prepared and G-banding staining was performed on metaphase chromosomal smear. According to databases, genes in the affected area were collected and after comparing genome of the rats and human in changed chromosomal segments, a gene list was prepared. FISH technique was performed on BRCA1 gene to prove accuracy of chromosomal banding results.

Results: Structural changes such as deletion occurred in chromosomes 10, which BRCA1 is located on. 24.7% of cells showed evidence of physical deletion in both copy of BRCA1 gene and 23.8% of cells showed deletion in one copy.

Conclusion: Induced DMBA Breast cancer cells showed deletion in BRCA1 copy numbers. This gene may be involved in animal breast tumor model.

Keywords: Breast cancer, BRCA1 gene, G-banding, FISH, Rat

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