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Screening of *KRAS* gene mutations in breast cancer

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The incidence of breast cancer in India is on the rise and is rapidly becoming the number one cancer in females pushing the cervical cancer to the second spot. It is reported that one in 22 women in India is likely to suffer from breast cancer during her lifetime. Breast cancer is not only acquired but can also be inherited. Women who have first-degree relative diagnosed to have breast cancer increase their risk of acquiring breast cancer. Further studies have added many candidate genes. *KRAS* (proto-oncogene) is one such gene reported in BCGD. It is implicated in 20-75% of colorectal cancer 80-90% of pancreatic cancer and a lesser frequency with other cancers. Mutations in *KRAS* gene causes constitutively active signaling function leading to cell proliferation and cancer. Most of these *KRAS* mutations are localized on codon 12 and to a lesser degree at codons 61. A study on mutational analysis of human breast cancer cell lines has revealed 18% of association of *KRAS* gene mutations. Studies from different parts of the world have reported a strong contribution of *KRAS* gene mutations in breast cancer. In the present study, around 150 paired (tumor and normal) tissue samples, diagnosed for breast cancer would be analyzed for *KRAS* gene mutations. An equal number of blood samples would be analyzed of the same patients to understand germinal mutations of *KRAS* gene mutations. PCR-RFLP method will be employed to analyze clinically relevant mutations whereas PCR-SSCP analysis will be employed to detect unknown mutations. All the samples suspected for mutations by SSCP analysis will be confirmed by direct sequencing. The relation between overall survival of patients with breast cancer and *KRAS* gene mutations can be established. The possible role of *KRAS* gene mutations in disease prognosis of breast cancer can be understood. The *KRAS* gene mutations are detected in both male and female breast cancer patients and have been shown to have *KRAS* gene mutations. The significant correlation of *KRAS* gene mutations in age and gender are analyzed. All the above cases are analyzed to screen full *KRAS* gene. The paraffin embedded block tissues are screened for the histo-pathological studies.

Biography

Ch Sushma did her Bachelor's degree (2007) in Genetics as combination subjects, followed by Master's degree in Genetics (2009) and joined PhD in 2011 in Department of Genetics under the supervision of Professor K Rudrama Devi. She has interest in research and especially to work on woman related cancers like breast cancer. She has collaborated with Indo American Cancer Hospitals for specimen collection and collected about 150 paired tissue specimens for the research work for submission of her thesis. Two of her manuscripts have been accepted in international journals. She has been working on 4 different gene polymorphisms and doing the correlation study with each impact on breast cancer. She has articles published in *Asian Pacific Journal of Cancer* and *International journal of Biotechnology.*

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