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TP53 Codon 72 and 240 polymorphism and P53 expression: An association with oral squamous cell carcinoma

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Oral squamous cell carcinoma (OSCC) is the leading cause of death in the developing countries like Pakistan. This problem aggravates because of the excessive use of available chewing products. In spite of widespread information on their use and purported legislations against their use, the Pakistani markets are classical examples of selling chewable carcinogenic mutagens. Reported studies indicated that these products are rich in reactive oxygen species (ROS) and polyphenols. TP53 gene is involved in the suppression of tumor. It has been reported that somatic mutations caused by TP53 gene are the foundation of the cancer. This study aims to find the loss of TP53 functions due to mutation/polymorphism caused by genomic alteration and interaction with tobacco and its related ingredients. Total 260 tissue and blood specimens were collected from OSCC patients and compared with age and sex matched controls. Mutations in exons 2-11 of TP53 were examined by PCR-SSCP. Samples showing mobility shift were directly sequenced. Two mutations were found in exon 4 at nucleotide position 108 and 215 and one in exon 7 at nucleotide position 719 of the coding sequences in patient's tumor samples. These results in substitution of proline with arginine at codon 72 and serine with threonine at codon 240 of p53 protein. These polymorphic changes, found in tumor samples of OSCC, could be involved in loss of heterozygosity and apoptotic activity in the binding domain of TP53. The interpretations could be helpful in establishing the pathways responsible for tumor formation in OSCC patients.

Biography

Saima Saleem has completed her PhD at the age of 32 years from University of Karachi and Postdoctoral studies from Ohio University, Heritage College of Osteopathic Medicine, Athens, Ohio, USA. She is an Assistant Professor of "The Karachi Institute of Biotechnology and Genetic Engineering (KIBGE)", University of Karachi. Her field of expertise is the "Emerging Genomic and Epigenomic Diagnosis in different types of Cancers in Pakistan". She has over 12 years experience of teaching and research. Her research publications are in journals of high impact. She has presented a number of papers at national and international conferences. She is professionally associated with many research organizations, scientific academies, educational forums and social bodies at national and international levels.

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