

The role of periostin in regulation of early tumorigenesis in oral squamous cell carcinomas

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Oral Squamous cell carcinomas are the most frequent malignancy of the oral cavity. Tissue Microarray analysis of OSCC revealed the up-regulation of POSTN gene expression in OSCC compared to normal tissues. It was reported that periostin contributes to malignancies mainly by preventing apoptosis and promoting angiogenesis, invasion, and metastasis. The roles of periostin in regulating cell proliferation, and genomic instability of cancer cells during tumorigenesis still require further investigation. The aims of this study was to indicate the oncogenic activity effect of periostin in OSCC, contribution of periostin in promoted OSCC proliferation and calculate the DNA index of ploidy and anploidy channels. SCC4, SCC9, SCC15, and SCC25 were transfected with periostin. For unbiased, siRNA and transfected Ca9-22 cells were used. Expression of periostin was analyzed then cells were stained by annexin V for apoptosis detection and PI for proliferation and DNA ploidy then stained cells were analyzed using FACScaliber. This study found that the oral squamous cell carcinoma cell lines transfected with periostin, exhibited significantly increased proliferation, compared with non-transfected. Periostin-overexpressing cells stained with annexin V and PI showed significantly ($p < 0.05$) and ($p < 0.005$) respectively. We have recorded that the number of hyperdiploid passages was 33% and 67% were diploid. Hyperdiploid passages with DNA index ≥ 1.16 and ≤ 1.6 were 12 passages and hyperdiploid with DNA index > 1.6 (11 passages). We conclude that periostin play an important role in the tumorigenesis of OSCC by deregulation of the cell cycle, escaping from apoptosis, and the potential for unlimited replication. It encourages genetic alterations by enhancing chromosomal instabilities.

Biography

Gihan E. H. Gawish is an Assistant Professor Molecular Genetics in Medical Biochemistry Department, College of Medicine of Al-Imam University, Riyadh, Saudi Arabia. Also, She is a medical laboratory specialist since 2001. She earned her M.Sc. and Ph.D. at Mansoura University, Egypt. She is a Postdoc fellow, Oral Biological and Medical Science, University of British Columbia, Vancouver, Canada since 2011. She has published 12 peer-reviewed papers. Her research combines medical molecular genetics and advanced applications of techniques. Her research is based on detecting the signals that affect the tumorigenesis and introduce these signals with modified protocols to be investigated using modern current routine equipments in clinical laboratories for aiding in the early diagnosis and development of new personalized treatment approaches. She has been included in Marquis Who's who in the world 2013.

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