



**Oral Presentation
Abstracts**



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OP-07

Molecular Pathogenesis of Oral Squamous Cell Carcinoma

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Background Oral squamous cell carcinoma is the most common subtype of head and neck carcinoma. The development of oral squamous cell carcinoma (OSCC) is a multistep process requiring the accumulation of multiple genetic alterations, influenced by a patient's genetic predisposition as well as by environmental influences, including tobacco, alcohol, chronic inflammation, and viral infection.

Discussion Tumorigenic genetic alterations consist of two major types, tumor suppressor genes, which promote tumor development when inactivated and oncogenes, which promote tumor development when activated. Tumor suppressor genes can be inactivated through genetic events such as mutation, loss of heterozygosity, or deletion, or by epigenetic modifications such as DNA methylation or chromatin remodeling. Oncogenes can be activated through overexpression due to gene amplification, increased transcription, or changes in structure due to mutations that lead to increased transforming activity. These events result in the increased production of growth factors or cell-surface receptors and the activation of intracellular messenger signaling, leading to autonomous growth of tumor cells without extracellular growth stimuli. Along with evasion of growth-inhibitory signals by the inactivation of tumor suppressor and the inhibition of apoptosis, leads normal oral epithelial cells to acquire the malignant phenotype. As OSCCs grow, invade, and metastasize, new blood vessel formation is critical and OSCCs, like most tumors, are able to create a blood supply by stimulating endothelial cell proliferation and new blood vessel formation.

Conclusion The understanding of the molecular alterations contributing to the development of OSCC is leading to improvements in the early diagnosis of tumors and the refinement of biologic treatments individualized to the specific characteristics of a patient's tumor.

KEY WORDS: oral squamous cell carcinoma, multistep carcinogenesis, oncogene, tumor suppressor gene.

OP-08

Chondrogenic Differentiation Capacity of Human Umbilical Cord Mesenchymal Stem Cells with Platelet Rich Fibrin Scaffold in Cartilage Regeneration (in vitro study)

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Human umbilical cord mesenchymal stem cells is a promising source of allogeneous MSC. Differentiation capacity along fibrocartilage lineage made hUCMSC a potential source of MSC to be used in mandibular cartilage regeneration. Platelet rich fibrin is a natural fibrin matrix, rich in growth factors, forming a smooth and flexible fibrin network, supporting cytokines and cell migration, thus can be used as a scaffold that facilitate the differentiation of MSC. The purpose of this study is to evaluate *in vitro* chondrogenic differentiation of hUCMSC with PRF in chondrogenic medium by the expression of FGF 18, Sox 9, type II collagen, aggrecan in 3 types of culture medium. Result of this study showed that there were positive expression of FGF 18, Sox 9, type II collagen, aggrecan in all medium in *in vitro* culture. *The conclusion of this study was MSC cultured from human umbilical cord had the capacity of chondrogenic differentiation and able to produce cartilage extracellular matrix in vitro which means that hUCMSC is a potential allogeneic MSC for cartilage regeneration.*

OP - 09

3D Model Printing in Oral and Maxillofacial Reconstruction Surgery

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Background: The use of 3 Dimension (3D) models based from MSCT-Scan imaging is becoming popular nowadays. To support, many Computer-Aided Design (CAD) software and 3D Printers are available. The concern from this technology usage is always regarding patients safety in application. Accuracy and precision is a benchmark that must be set higher, since there is no standard calibration for medical use.

Research Aim: To compare commonly use 3D models fabrication with original MSCT-Scan data for accuracy and precision in reconstruction surgery.

Methods: MSCT-Data from 8 samples are processed and manufactured to be 3D Model. Both groups are then measured and analyzed as comparison.

Results: Final result reveal high accuracy although not precisely same as control group.

Conclusions : The 3D Model could be considered as simple guidance for maxillofacial reconstruction surgery.

Keywords: 3 Dimension Model, Computer-Aided Design, Reconstruction surgery