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Stem cell therapy for dentofacial regeneration and tissue engineering: Current approaches, challenges and future directions

Applications of stem cell therapy in dentofacial regeneration and tissue engineering have received global attraction and attention in the last few decades. Cell therapy using a wide range of embryonic stem cells, adult stem cells from different tissues has been studied. These applications are ranging from tissue regeneration and engineering jaw articular joint, jaw bone, teeth, gum as well as dental pulp. However, challenges in isolation, identification, differentiation and use of these cells for treatment of dentofacial regeneration and tissue engineering, although have been extensively studied, their clinical application still controversial. This presentation will show contemporary cell therapy in different dentofacial applications of tissue regeneration and engineering, successes, challenges and future applications Also, the presentation will highlight cell modulations and use for these applications versus cell homing. In addition this presentation will highlight methods of cell homing, their efficiency and the molecular basis of cell modulation and/ or homing.

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Biography

Tarek El-Bialy has completed his Ph.D at the age of 36 years from University of Illinois at Chicago in Bioengineering and postdoctoral studies from the same University, college of Engineering. He is the director of Craniofacial tissue engineering laboratory at the Department of Dentistry, Faculty of Medicine and Dentistry, University of Alberta, Canada. Tarek El-Bialy also is a clinician (orthodontist). He has published more than 30 papers in reputed journals and serving as an editorial board member of repute. He has been keynote speaker in many National and International conferences in clinical orthodontics and tissue engineering.

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