What is on the horizon in terms of dentin-pulp complex tissue engineering?

Entering the era of molecular dentistry, novel treatment modalities and biomaterials, able to regenerate craniofacial and oral tissues are designed and tested at preclinical level. Biomedical research seems to convert progressively the paradigm of traditional dentistry where the lost tooth structure is replaced by an appropriate dental material, into a new regenerative paradigm where the lost tooth structure should be replaced with tooth structure. Numerous experimental approaches support the working hypothesis that the therapeutic control of dentin-pulp complex regeneration is now possible. Among other clinical situations, the clinical challenges in the development of effective therapies in teeth with deep dentinal cavities, extensive loss of crown tooth structure and compromised pulp functions, offer exciting opportunities for the near future. In this presentation the biological insights of the real therapeutic needs in the currently used vital pulp treatment modalities and the newly introduced materials will be reviewed. The most promising molecules-based dentin-pulp complex tissue engineering strategies, and how they can work in a clinically predictable way, will be further discussed.

Biography

Dimitrios Tziafas is Professor of Endodontics in Endodontic Program of Hamdan Bin Mohammed College of Dental Medicine, DHCC Dubai, UAE. He received his DDS and PhD in Aristotle University of Thessaloniki, Greece (AUTH). After Post-doc research in Institute Biologie Medicale, Faculte de Medecine, Universite Louis Pasteur, Strasbourg, France, he served as Professor and Chair of the Department of Endodontology at AUTH and Director of Master Programs in Endodontics in AUTH (1999-2013) and European University College, Dubai (2013-2016), President of IADR – Continental European Division (2006-2008), Chairman of the 42nd IADR-CED meeting and Member of the Research Committee of European Society of Endodontology. He published 8 invited reviews and 50+ research papers in international peer-reviewed scientific journals (Endodontology and Basic Science), a monograph on Reparative Dentinogenesis and textbooks chapters relating to Dentin-Pulp Biology. He attended 25+ lectures as invited keynote speaker and 100+ research presentations in international meetings.

dtziaf@dent.auth.gr

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