

1. Record Nr.	UNINA9910220042003321
Autore	Mitsiadis Thimios
Titolo	Dental and Periodontal Tissues Formation and Regeneration: Current Approaches and Future Challenges
Pubbl/distr/stampa	Frontiers Media SA, 2016
Descrizione fisica	1 electronic resource (246 p.)
Collana	Frontiers Research Topics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	<p>Sequential and reciprocal interactions between oral epithelial and cranial neural crest-derived mesenchymal cells give rise to the teeth and periodontium. Teeth are vital organs containing a rich number of blood vessels and nerve fibers within the dental pulp and periodontium. Teeth are composed by unique and specific collagenous (dentin, fibrillar cementum) and non-collagenous (enamel) highly mineralized extracellular matrices. Alveolar bone is another collagenous hard tissue that supports tooth stability and function through its close interaction with the periodontal ligament. Dental hard tissues are often damaged after infection or traumatic injuries that lead to the partial or complete destruction of the functional dental and supportive tissues. Well-established protocols are routinely used in dental clinics for the restoration or replacement of the damaged tooth and alveolar bone areas. Recent progress in the fields of cell biology, tissue engineering, and nanotechnology offers promising opportunities to repair damaged or missing dental tissues. Indeed, pulp and periodontal tissue regeneration is progressing rapidly with the application of stem cells, biodegradable scaffolds, and growth factors. Furthermore, methods that enable partial dental hard tissue repair and regeneration are being evaluated with variable degrees of success. However, these cell-based therapies are still incipient and many issues need to be addressed before any clinical application. The understanding of tooth and periodontal tissues formation would be</p>

beneficial for improving regenerative attempts in dental clinics. In the present e-book we have covered the various aspects dealing with dental and periodontal tissues physiology and regeneration in 6 chapters: 1. General principles on the use of stem cells for regenerating craniofacial and dental tissues 2. The roles of nerves, vessels and stem cell niches in tissue regeneration 3. Dental pulp regeneration and mechanisms of various odontoblast functions 4. Dental root and periodontal physiology, pathology and regeneration 5. Physiology and regeneration of the bone using various scaffolds and stem cell populations 6. Physiology, pathology and regeneration of enamel using dental epithelial stem cells

---