Reviews

CRITICAL REVIEWS IN ORAL BIOLOGY & MEDICINE

The Role of Wnt Signaling in Squamous Cell Carcinoma
S.-G. Shiah, Y.-S. Sheh, and J.-Y. Chang
The authors provide a review of current knowledge about the Wnt-related signaling pathway in oral squamous cell carcinoma.

Roles of Proton-Sensing Receptors in the Transition from Acute to Chronic Pain
W.H. Sun and C.C. Chen
The authors summarize the factors that modulate hyperalgesic priming in both IB4-positive and IB4-negative nociceptors and discuss an endogenous mechanism preventing hyperalgesic priming.

CLINICAL REVIEW

Detecting Secondary Caries Lesions: A Systematic Review and Meta-analysis
F. Brouwer, H. Askar, S. Paris, and F. Schwendicke
In this systematic review and meta-analysis, the authors assessed the accuracy of 5 detection methods for secondary caries lesions—visual, tactile, radiography, laser fluorescence, and quantitative light-induced fluorescence.

Research Reports

CLINICAL

Detecting Proximal Secondary Caries Lesions: A Cost-effectiveness Analysis
F. Schwendicke, F. Brouwer, S. Paris, and M. Stolpe
In this model-based cost-effectiveness study, the authors evaluate the long-term consequences of using different detection methods and thresholds for proximal secondary caries lesions.

Is Dental Utilization Associated with Oral Health Literacy?
J.M. Burgette, J.Y. Lee, A.D. Baker, and W.F. Vann Jr
In a U.S. cohort of enrollees in the Women, Infants, and Children program, dental utilization was not found to be a significant predictor of oral health literacy.

The Shape of the Dose-Response Relationship between Sugars and Caries in Adults
E. Bernabé, M.M. Vehkalahti, A. Sheiham, A. Lundqvist, and A.L. Suominen
In this longitudinal study, amount of sugars intake was more important for caries development than ingestion frequency, and sugars had a detrimental effect on dental status despite high exposure to fluoride toothpaste.

Vitamin D and Dental Caries in Children
R.J. Schroth, R. Rabbani, G. Loewen, and M.E. Moffatt
The authors provide evidence of an association between dental caries in Canadian children and low vitamin D levels/status.

BIOLOGICAL

Distinct Excitation to Pulpal Stimuli between Somatosensory and Insular Cortices
H. Nakamura, T. Shirakawa, N. Koshikawa, and M. Kobayashi
The secondary somatosensory and insular cortices are more sensitive for detecting dental pulp sensation and code stimulation intensity than the primary somatosensory cortex.

Conditional TNF-α Overexpression in the Tooth and Alveolar Bone Results in Painful Pulpitis and Osteitis
TNF-α expression alone can produce inflammation similar to pulpitis and osteitis and the described mouse model can be used to study dental inflammatory pain.

Immune Cells and Molecular Networks in Experimentally Induced Pulpitis
The authors highlight a detailed analysis of lipopolysaccharide-induced innate immune response in dental pulp by quantitative polymerase chain reaction and fluorescence-activated cell sorting.

Purified Human Dental Pulp Stem Cells Promote Osteogenic Regeneration
The authors demonstrate that human dental pulp stem cells, prospectively isolated on the basis of their expression of LNGFR and Thy-1 markers, have osteogenic potential and could provide an ideal cell source for future regenerative therapies.

Epigenetic Modifications of Histones in Periodontal Disease
Dysbiosis induces histone modifications during periodontal disease.
Diet-Induced Obesity and Its Differential Impact on Periodontal Bone Loss
M. Muluke, T. Gold, K. Kiefhaber, A. Al-Sahl, R. Celenti, H. Jiang, S. Cremers, T. Van Dyke, and U. Schulze-Späte
The authors describe the impact of specific fatty acids (saturated palmitic acid and unsaturated oleic acid) on systemic bone metabolism and local periodontal bone loss in diet-induced obesity.

BIOMATERIALS & BIOENGINEERING
MicroRNA-138 Inhibits Periodontal Progenitor Differentiation under Inflammatory Conditions
X. Zhou, X. Luan, Z. Chen, M. Francis, G. Gopinathan, W. Li, X. Lu, S. Li, C. Wu, and T.G.H. Diekwisch
The microRNA miR-138 modulates the inhibition of osteogenesis that occurs during periodontal inflammation by interacting with the osteocalcin promoter.

ABOUT THE COVER
Dentin matrix protein 1/tumor necrosis factor–αβ mice show inflammatory infiltrates within the tooth pulp with enlarged blood vessels. Hematoxylin and eosin staining.
For more details, see pages 188-195.