EDITORIAL

IADRGoral Oral Health Inequalities Research Agenda (IADR-GOHIRA®): A Call to Action ................................................ 209
H.D. Sgan-Cohen, R.W. Evans, H. Whelton, R.S. Villena, M. MacDougall, D.M. Williams, and IADR-GOHIRA Steering and Task Groups

The authors provide context for the IADR Board’s Call to Action, addressing the challenges of robust engagement across sectors, including social policy, and the adoption of an upstream approach that integrates action on oral health with approaches to reduce the global burden of non-communicable disease in general.

PERSPECTIVE

Tooth Eruption without Roots .................................................. 212
X.-P. Wang

This perspective highlights this month’s report by Kim and colleagues on the unraveling of the mechanisms of root formation and tooth eruption.

BIOLOGICAL

β-catenin is Required in Odontoblasts for Tooth Root Formation .................................................. 215

There is a cell-autonomous requirement for Wnt/β-catenin signaling in the dental mesenchyme for root formation.

Eve Regulates a Symmetrical Response to Shh Signaling in Molar Development ................................................ 222

Spatially and temporally disrupted activities of the Shh pathway are a primary cause for dental anomalies seen in patients with Ellis-van Creveld syndrome or Wevers acrodental dysostosis.

Oral Lining Mucosa Development Depends on Mesenchymal microRNAs .................................................. 229

Mesenchyme miRNAs have an indirect effect on lining mucosal epithelial cell growth/differentiation.

Oral Epithelial Cell Responses to Multispecies Microbial Biofilms .................................................. 235
R. Peyyala, S.S. Kirakodu, K.F. Novak, and J.L. Ebersole

This report describes the use of a novel model of multispecies biofilms to stimulate cytokines/chemokines from oral epithelial cells that contribute to local inflammation in the periodontium.

A. actinomycetemcomitans LPS Enhances Foam Cell Formation Induced by LDL ................................................ 241
M. Morishita, W. Ariyoshi, T. Okinaga, M. Usui, K. Nakashima, and T. Nishihara

LPS plays an important role in foam cell formation by LDL-stimulated macrophages.

Periodontal Pathogen Accelerates Lipid Peroxidation and Atherosclerosis ................................................ 247
R. Liu, T. Kaita-Ochiai, S. Oguchi, and M. Yamamoto

Aggregatibacter actinomycetemcomitans promotes innate immune signaling and LDL oxidation, and may facilitate atheroma development.

Occlusal Effects on Longitudinal Bone Alterations of the Temporomandibular Joint ................................................ 253

There is active bone remodeling in subchondral bone in TMJs in response to alteration in occlusion, although new bone was formed with lower BMD and poor mechanical properties.

P2X7 Receptor and Cytokines Contribute to Extra-territorial Facial Pain ................................................ 260

Soluble TNF-α released by microglia following P2X7 activation may be important in both the initiation and maintenance of extra-territorial pain after mental nerve transection.

Novel KLK4 and MMP20 Mutations Discovered by Whole-exome Sequencing ................................................ 266
S.-K. Wang, Y. Hu, J.P. Simmer, F. Seguen, N.M.R.P. Estrella, S. Pal, B.M. Reid, M. Yildirim, M. Bayram, J.D. Bartlett, and J.C.-C. Ha

Whole-exome sequencing is an effective means of identifying disease-causing mutations in kindreds with amelogenesis imperfecta, and this technique should prove clinically useful for this purpose.

(continued)
Functional Connectivity of Human Chewing: An fMRI Study
A. Quintero, E. Ichesco, R. Schutt, C. Myers, S. Peltier, and G.E. Gerstner
The authors’ results identify functional central networks engaged during mastication.

BIOMATERIALS & BIOENGINEERING

Effect of Local vs. Systemic Bisphosphonate Delivery on Dental Implant Fixation in a Model of Osteonecrosis of the Jaw
J. Abtahi, F. Agholme, O. Sandberg, and P. Aspenberg
Local bisphosphonate treatment appears to improve implant fixation in a setting where systemic treatment caused ONJ.

Monomer-Collagen Interactions Studied by Saturation Transfer Difference NMR
N. Hiraishi, N. Tochio, T. Kigawa, M. Otsuki, and J. Tagami
MDP-collagen complexation accounts for stable dentin bonding.

Effect of Acidic Solution Viscosity on Enamel Erosion
A. Aykut-Yetkiner, A. Wiegand, A. Bollhalder, K. Becker, and T. Attin
Dental erosion is dependent not only on chemical factors of the acid, like pH and acid type, but also on acid viscosity.

ABOUT THE COVER
Dental abnormalities of adult Ellis-van Creveld syndrome (Evc) mutants. The lingual molar teeth of wild-type mice are stained using Alizarin Red.

For more details, see pages 222-228.