DEPARTAMENTS

SPEECH
Stephen C. Bayne
This is the text of the President-elect's address delivered during the Opening Ceremonies of the 84th General Session of the International Association for Dental Research, June 26, 2006, Brisbane, Australia.

DISCOVERY!
Timothy S. Miles
The author tracks the role of "serendipity" throughout his research career.

CLASSIFIEDS

REVIEWS

CRITICAL REVIEWS IN ORAL BIOLOGY & MEDICINE

Role of Macromolecular Assembly of Enamel Matrix Proteins in Enamel Formation
H.C. Margolis, E. Beniash, and C.E. Fowler
The authors critically review the present state of knowledge regarding the potential role of the assembly of enamel matrix proteins in the regulation of crystal growth and the structural organization of the resulting enamel tissue, with primary focus on the structure and function of amelogenin, the predominant enamel matrix protein.

Human Immunodeficiency Virus (HIV) Transmission in Dentistry
C. Scully and I.S. Greenspan
To assess the current position in dentistry on the subject of HIV transmission in the health-care setting, the authors have reviewed the evidence to November 1, 2005.

RESEARCH REPORTS

BIOMATERIALS & BIOENGINEERING

Remineralization of Enamel Caries Can Decrease Optical Reflectivity
R.S. Jones and D. Fried
Optical reflectivity may provide a non-destructive means of quantifying the extent of enamel remineralization and, potentially, lesion activity.
Static and Dynamic Loading Effects on Temporomandibular Joint Disc Tractional Forces

J.C. Nickel, L.R. Iwasaki, M.W. Beatty, M.A. Moss, and D.B. Marx

Tractional forces are strain-related at the start of movement and velocity-dependent during movement.

BIOLOGICAL

Amelogenins in Human Developing and Mature Dental Pulp

L. Ye, T.Q. Le, L. Zhu, K. Butcher, R.A. Schneider, W. Li, and P.K. Den Besten
These are the first studies to identify specific alternatively spliced amelogenin fragments and their effects on developing and adult human dental pulp cells grown in culture.

Role of Human Pulp Fibroblasts in Angiogenesis

L. Tran-Hung, S. Mathieu, and I. About Pulp fibroblasts secrete angiogenic factors, which are necessary for complete pulp healing, particularly at the pulp injury site.

Re-oxygenation Improves Hypoxia-induced Pulp Cell Arrest

Y. Ueno, C. Kitamura, M. Terashita, and T Nishihara
Hypoxia-induced cell-cycle arrest in pulp cells is reversible, while cyclin D2 may play an essential role in the improvement of cell proliferation with re-oxygenation.

S1 00A8 Triggers Oxidation-sensitive Repulsion of Neutrophils

H.Y. Sroussi, J. Berline, P. Dazin, P. Green, and J.M. Palefsky
The authors describe a naturally occurring novel anti-inflammatory pathway that provides potential molecular targets for the development of novel anti-inflammatory therapeutics.

Ca, P¡, and F in the Fluid of Biofilm Formed under Sucrose

L.M.A. Tenuta, A.A. Del Bel Cury, M.C. Bortolin, G.L. Vogel, and J. A. Cury
There is a homeostatic mechanism that maintains the biofilm's fluid mineral ion concentration, regardless of its total concentration in the whole biofilm.

Desipramine Inhibits Na+/ H+ Exchanger in Human Submandibular Cells

The authors report, for the first time, the inhibitory effect of desipramine on Na+/H+ exchanger in human submandibular glands without involvement of catecholamine reuptake, revealing the cellular mechanism of desipramine-evoked xerostomia.

Immobilization Stress Induces BDNF in Rat Submandibular Glands

K. Tsukinoki, J. Saruta, K. Sasaguri, Y. Miyoshi, Y. Jinbu, M. Kusama, S. Sato, and Y. Watanabe
Increased salivary brain-derived neurotrophic factor expression occurs following immobilization stress.

Functional Adaptability of Jaw-muscle Spindles after Bite-raising

T. Yabushita, J.L. Zeredo, K. Fujita, K. Toda, and K. Soma
The authors report a high degree of adaptability in masseter muscle spindle function following changes in occlusal vertical dimension.

CLINICAL

Oral Clonidine Pre-treatment and Diazepam / Meperidine Sedation

D.L. Hall, D.N. Tatakes, J.D. Walters, and E. Rezvan
Pre-operative clonidine administration could be a useful supplement to intravenous sedation for dental procedures of long duration.

PTCH Mutations in Sporadic and Gorlin-syndrome-related Odontogenic Keratocysts

X.-M. Gu, H.-S. Zhao, L.-S. Sun, and T.-J. Li
This report is the first to describe PTCH mutations in both non-syndromic and Gorlin-syndrome-related odontogenic keratocysts in Chinese patients.