

## **S. Prem Premaraj**

### **Professor and Chairman**

#### **EDUCATION:**

- BDS (Hons), University of Peradeniya, Sri Lanka
- MS (Orthodontics), Postgraduate Institute of Medicine, University of Colombo, Sri Lanka
- Certificate, Orthodontics, The Ohio State University, Columbus, OH, USA
- PhD, The Ohio State University, Columbus, OH, USA
- Diplomate, American Board of Orthodontics
- Fellow of The Royal College of Dentists of Canada (FRCD)

#### **RESEARCH INTERESTS:**

- Biology of tooth movement
- Craniosynostosis
- Cleft lip and palate
- Obstructive sleep apnea

#### **HONORS AND AWARDS**

- Henry and Ann Cech Professor of Orthodontics, University of Nebraska Medical Center
- Fellow, American Dental Education Association (ADEA) Leadership Institute
- Fellow of the International College of Dentists (FICD)
- AAOE Eugene E. West Memorial Fellowship
- AAO Full-time Faculty Teaching Fellowship (2010)
- Hatton Award Finalist, Post-doctoral category, American Association of Dental Research
- AAO Full-time Faculty Teaching Fellowship (2009)
- Dr. William E. Ludwick Endowed Faculty Fellowship
- AAO Full-time Faculty Teaching Fellowship (2008)
- AAOE Subtelny Baker, Eastman Teaching Fellowship
- D.H. Reinhardt Scholar, University of Nebraska Medical Center
- AAOE Robert M. Ricketts Sunflower Orthodontics Fellowship
- Cleft Palate Foundation - James F. Mulick Orthodontic Scholarship
- Graduate Student Award, Conferences on Orthodontic Advances in Science & Technology
- Sarnat Award Finalist, International Association of Dental Research
- Government of Sri Lanka Graduate Fellowship

#### **GRANTS**

- Jul. 2016 – Jun. 2017, Gingival Crevicular Fluid levels of Sclerostin during Orthodontic Treatment with fixed appliances, UNMC College of Dentistry, Faculty Seed grant, Investigator
- Sep. 2015 – Dec. 2016, Effects of Flash-free Brackets on Plaque Retention, Development of White Spot Lesions, and Bracket Failures: A Comparative Clinical Study, 3M Unitek, Investigator
- Feb. 2015 – Jan. 2020, Neuropilin-2 Axis in Docetaxel Resistance and Prostate Cancer Bone Metastasis, DHHS/NIH/NCI (1R01CA182435-01A1), Co-Investigator
- Jul. 2013 – Jun. 2014, Shift in Species Composition of Supra and subgingival gingival Microbiome as a Risk factor in Dental Caries/ Periodontal disease: a comparative study with braces/ Invisalign treatment, Align Technology, Inc., Co-Investigator
- Jul. 2012 – Jun. 2013, Role of PTHrP in orthodontic tooth movement, American Association of Orthodontists Foundation, Investigator
- Jul. 2012 – Jun. 2013, Shift in Species Composition of Supra and subgingival gingival Microbiome as a Risk factor in Dental Caries/ Periodontal disease: a comparative study with braces/ Invisalign treatment, Align Technology, Inc., Co-Investigator
- Jul. 2011 – Jun. 2012, Molecular Bacteriological Analysis of Supra Gingival Plaque of Orthodontic Patients and White Lesions, UNMC College of Dentistry, Faculty Seed grant, Co-investigator

- Aug. 2009 – Jul. 2012, Stent-Induced Arterial Strain and Stress as a Determinant of Restenosis, NSF Broadening Participation Research Initiation Grants in Engineering, Co-investigator
- Jul. 2009 – Jun. 2010, Role of Sclerostin in Tooth extraction-induced alveolar bone resorption, UNMC College of Dentistry, Faculty Seed grant, Investigator
- Jul. 2008 – Jun. 2009, Orthodontic Loading of Alveolar Bone in vivo Reduces Osteocyte Expression of SOST/Sclerostin, UNMC College of Dentistry, Faculty Seed grant, Investigator
- Feb. 2007 – Feb. 2008, TGF-beta3-mediated apoptosis in osteoblasts, National Institute of Health, Nebraska Center for Cellular Signaling, Investigator

#### CONSULTING POSITIONS/PROFESSIONAL SERVICE

- Test Constructor, American Board of Orthodontics, Clinical examination
- Examiner, American Board of Orthodontics, Clinical examination
- Test Constructor, Dental Licensure Objective Structured Clinical Examination (DLOSCE), American Dental Association
- Site visitor, Commission on Dental Accreditation (CODA)
- Member, Steering committee, Full-time Faculty Fellowship award program, American Association of Orthodontists
- Member, Objective Review Committee, HRSA
- Consultant, Division of Public health investigations, Department of Health and Human Services, State of Nebraska
- Member, Advanced Dental Admission Test (ADAT) Exam review Committee - Orthodontics, Joint Commission on National Dental Examinations
- Member, Advanced Dental Admission Test (ADAT) Case development Committee - Orthodontics, Joint Commission on National Dental Examinations
- Member, Advanced Dental Admission Test (ADAT) Construction Committee - Orthodontics, Joint Commission on National Dental Examinations
- Member, NBDE Part 2 Test Construction Committee - Orthodontics, Joint Commission on National Dental Examinations
- Member, Editorial board, *Dental Press Journal of Orthodontics*
- Member, Governance Stakeholders committee, American Association of Orthodontists

#### OFFICES IN PROFESSIONAL SOCIETIES

2020-2021	Past-President, IADR/AADR/Craniofacial Biology Group
2019-2020	President, IADR/AADR/Craniofacial Biology Group
2018-2019	President-Elect, IADR/AADR/Craniofacial Biology Group
2017-2018	Vice-President, IADR/AADR/Craniofacial Biology Group
2017-2018	Editor, Society of Educators, American Association of Orthodontists
2012 -2015	Director, IADR/AADR/Craniofacial Biology Group
2010-2011	President, Nebraska Society of Orthodontists
2009-2010	Vice-President, Nebraska Society of Orthodontists
2008-2009	Secretary-treasurer, Nebraska Society of Orthodontists
2007-2014	Member, Education Committee, American Cleft Palate-Craniofacial Association
2000–2001	Treasurer, Sri Lanka Orthodontic Society
1992–1994	Secretary, Sri Lanka Dental Association, Kandy Branch

#### Selected publications

Premaraj T, Vella R, Chung J, Lin Q, Hunter P, Underwood K, **Premaraj S** and Zhou Y, Ethnic variation of oral microbiota in children, *Nature Scientific Reports*, 2020, 10(1): 14788.

Ishani Afousi P, Premaraj T, and **Premaraj S**, Effects of Flash-Free Bonding Technique on Plaque Retention and Development of White Spot Lesions: A Randomized Clinical Trial, *Sri Lanka Journal of Orthodontics*, 2020; 2(1): 26-35

Soyland R, Ye J, Premaraj T, and **Premaraj S**, An *in vitro* comparison of shear bond strength, adhesive remnant cleanup and microleakage of a flash-free and conventional orthodontic adhesive, *Sri Lanka Journal of Orthodontics*, 2020; 2(1):38-45

Premaraj T, Siyeong, **Premaraj S**, Kim S, Gu L, Computational Fluid dynamics Modeling of Pharyngeal airway resistance based on cone-beam computed tomography, *Journal of Mechanics in Medicine and Biology*, 2019; 19(6): 1950045

**Premaraj S** and Premaraj T, Orthodontic loading and SOST/Sclerostin Expression in Rat Alveolar Osteocytes, *Sri Lanka Journal of Orthodontics*, 2018; 1(1): 28-33

**Premaraj SP**, Luong B, Kim S, Premaraj TS. Cervical spine angles, craniocervical posture, neck length and oropharyngeal airway analyses of sleep apnea patients in both supine and upright positions: A retrospective three-dimensional imaging study. In: McNamara JA, Shelgikar AV, eds. *Sleep Apnea: What Every Clinician (and Patient) Should Know*. Craniofacial Growth Series, Center for Human Growth and Development, The University of Michigan, Ann Arbor, MI 2018;54:319-347.

Premaraj TS, Scott JR, Burns ME, **Premaraj SP**. CBCT evaluation of volumetric changes in the upper airway following repositioning the mandible to centric relation. In: McNamara JA, Shelgikar AV, eds. *Sleep Apnea: What Every Clinician (and Patient) Should Know*. Craniofacial Growth Series, Center for Human Growth and Development, The University of Michigan, Ann Arbor, MI 2018;54:381-399.

Premaraj T. S, Rohani N, Covey D, **Premaraj S**, In-Vitro Evaluation of Surface Properties of Pro Seal® and Opal® SealTM in Preventing White Spot Lesions, *Orthodontics and Craniofacial Research*, 2017, 20 Suppl 1:134-138.

Qari H, Narayana N, Kessler H, **Premaraj S**, Symmetrical Multi-quadrant Isolated Dentin Dysplasia (SMIDD), a unique presentation mimicking Dentin Dysplasia Type 1b, *Oral Surg Oral Med Oral Pathol Oral Radiol*. 2017; 123(5): e164-e169.

Rachel C. K, **Premaraj S**, Smith B, Olson G, Williamson A, and Romanos G, Massive Open Online Courses in Dental Education: Two Viewpoints, *Journal of Dental Education*, 2016 ;80(2):121-7.

Hua Y, Gu L, **Premaraj S**, Zhang X, Influence of interphase on mechanical behavior of silica/epoxy resin nanocomposites, *Materials* 2015, 8, 3519-3531.

Premaraj T, Rohani N, Covey D, **Premaraj S**, Hua Y, Watanabe H, An in-vitro evaluation of mechanical and esthetic properties of orthodontic sealants, *European Journal of Dentistry*, 2014 8(4) 487- 492.

Premaraj T, Simet S, Beatty M, **Premaraj S**, Oral Epithelial Cell reaction following exposure to Invisalign® plastic Material, *American Journal of Orthodontics and Dentofacial Orthopedics*, 2014 145(1): 64-71

**Premaraj S**, Invited Editorial: What is really new in Orthodontics? *Sri Lanka Dental Journal* 2013, 43(3), 107-108.

**Premaraj S**, Souza I, Premaraj T, Focal Adhesion Kinase Mediates  $\beta$ -Catenin Signaling in Periodontal Ligament Cells, *Biochemical and Biophysical Research Communications*, 2013 439(4): 487-452

**Premaraj S**, Moursi A., Delivery of Transforming Growth Factor-Beta 3 Plasmid in a Collagen Gel Inhibits Cranial Suture Fusion in Rats, *The Cleft Palate-Craniofacial Journal*, 2013 50(3): e47-60

**Premaraj S**, I. Souza, T. Premaraj, Mechanical loading activates beta-catenin signaling in periodontal ligament cells, *The Angle Orthodontist*, 2011 81(4) 592-9

**Premaraj S**, Mundy B, Morgan D, Winnard PL, Mooney MP, Moursi AM: Sustained delivery of bioactive cytokine using a dense collagen gel vehicle, *Archives of Oral Biology*, 2006 51(4):325-33.

**Premaraj S**, B. Mundy, J. Parker-Barnes, P. L. Winnard and A. M. Moursi: Collagen Gel Delivery of Tgf-beta3 gene in Rat osteoblast and Calvarial culture, *Orthodontics and Craniofacial Research*, 2005 8(4):320-2.

Wada Akira, Hasebe Osamu, Sugiura Iwane, Itou Kouzi, Kubo Katsutoshi, **Sundaralingam Premaraj**, Maeda Akihiko, Kameyama Yoichiro: Effects of doxorubicin hydrochloride in the rat mandibular condyle *Japanese Journal of Oral Science*, 47 (5): 594-595, 1998.

### **Published Abstracts**

J. Patel, K. Sung, **S. Premaraj** and T. Premaraj, Root Apex Displacement and Root Resorption (RR) During Orthodontic Treatment, *J Dent Res*, 99(Spec Iss A): 3573, 2020

- J. Patel, K. Sung, T. Premaraj and **S. Premaraj**, Volumetric Evaluation of Root Resorption during Orthodontic Treatment with Extractions, *J Dent Res*, 99(Spec Iss A): 3573, 2020
- M. O'Brien, K. Sung, **S. Premaraj** and T. Premaraj, Retrospective Cephalometric Study of Upper Airway Dimensions and Skeletal Landmarks, *J Dent Res*, 99(Spec Iss A): 3573, 2020
- A. Schubert, T. Premaraj, S. Kim, and **S. Premaraj**, Stability of Transverse Dimensional Changes of Nasomaxillary complex following Palatal expander, *J Dent Res*, 98(Spec Iss A): 3573, 2019
- J. Welk and **S. Premaraj**, Anthropometric Neck Length Measurements and Obstructive Sleep Apnea Severity, *J Dent Res*, 98(Spec Iss A): 1026, 2019
- D. Duevel, S. Kim, R. Reinhardt, **S. Premaraj** and T. Premaraj, Effects of Functional Appliances on the Periodontium of Mandibular Incisors, *J Dent Res*, 98(Spec Iss A): 3574, 2019
- P. Afousi, T. Premaraj and **S. Premaraj**, Effects of Flash-Free Bonding Technique on Plaque Retention and Development of White Spot Lesions: A Randomized Clinical Trial, *European Journal of Orthodontics*, 39 (5): e34, 2017
- C. Schultz, **S. Premaraj** and T. Premaraj, Changes in Upper Airway Volume Following Surgical Removal of Adenoids, *J Dent Res*, 95(Spec Iss B): 1082, 2016
- T. Premaraj, J. Scott, M. Burns and **S. Premaraj**, Volumetric Airway Changes with Mandibular Repositioning at CR by CBCT, *J Dent Res*, 95(Spec Iss B): 1080, 2016
- R. Soyland, J. Ye and **S. Premaraj**, Bond Strength and Adhesive-cleanup of Brackets Bonded with Flash-free/Conventional adhesive, *J Dent Res*, 95(Spec Iss A): 1030, 2016
- T. Premaraj, C. Anderson, **S. Premaraj**, and S. Fernando, Bacterial community structure in endodontic infections, *J Dent Res.*, 93 (Spec Iss. B): 394, 2014
- S. Premaraj** and T. Premaraj, Orthodontic Loading and SOST/Sclerostin Expression in Rat Alveolar Osteocyte, *J Dent Res.*, 93 (Spec Iss. B): 1665, 2014
- A. Meyer, **S. Premaraj**, M. Beatty and T. Premaraj, Oral Epithelial Cell Response to Orthodontic Plastic - Preliminary Report, *J Dent Res.*, 91 (Spec Iss B): 366, 2012
- K. Russell, T. Premaraj, and **S. Premaraj**, Expression of Chemokines in Periodontal Tissues during Orthodontic Tooth Movement, *J Dent Res.*, 91 (Spec Iss B): 641, 2012
- S. Premaraj**, F. Chau and T. Premaraj Tooth Extraction/Hypofunction-Induced Changes in Alveolar Osteocyte Expression of SOST/Sclerostin, *J Dent Res.*, 91 (Spec Iss B): 1617, 2012
- S. Premaraj**, I. Souza, T. Premaraj, Molecular mechanisms of orthodontic tooth movement: emerging concepts, *Eur J Orthod*, e42, 2011
- S. Premaraj**, I. Souza, T. Premaraj, Nitric Oxide Mediates Mechanical loading-induced beta-catenin signaling in PDL cells, *J Dent Res.*, 90 (Spec Iss A): 1527, 2011
- C. Parks, J. Shin, T. Premaraj, **S. Premaraj**, FAK Regulates Activation of Beta-Catenin Signaling in Compressed PDL Cells, *J Dent Res.*, 90 (Spec Iss A): 3651, 2011
- L. Petersen, J. Shin, T. Premaraj, **S. Premaraj**, PGE2 mediates mechanical loading-induced up-regulation of Cx43 in PDL cells, *J Dent Res.*, 90 (Spec Iss A): 3646, 2011
- J. Stengle, L. Talluri, I. Souza, T. Premaraj, and **S. Premaraj**, Prostaglandin E2 Activates Beta-Catenin Signaling in Periodontal Ligament (PDL) Cells, *J Dent Res.*, 89 (Spec Iss B): 3748, 2010.

- S. Premaraj**, I. Souza, M. Talluri, M. Guerrero, J. Barta, T. Premaraj, Mechanical strain activates beta-catenin signaling in periodontal ligament cells, *J. Dent. Res* 89 (Spec Iss A), 2010.
- S. Jayappa, J. Thoendel, A. Moursi, **S. Premaraj**, Transforming growth factor-beta3 induced apoptosis of osteoblasts, *J Dent Res* 87 (Spec Iss B), 2008.
- B. McIntyre, J. Thoendel, A. Moursi, **S. Premaraj**, Effects of Transforming growth factor-beta3 on proliferation and differentiation of MC3T3-E1 cells, *J Dent Res* 87 (Spec Iss B), 2008.
- S. Premaraj**, B. Mundy, M. Mooney and A. M. Moursi, Inhibition of Rat Cranial Suture Fusion with Plasmid Encoding Tgf-beta3, *J Dent Res* 85 (Spec Iss A) :(1223), 2006.
- A.M. Mercado, K. Lubitz, J. Halderman, **S. Premaraj**, M. Beck, P. Larsen, and K. Vig: Root Development and Bone grafting in Patients with Alveolar Clefts, *J Dent Res* 85 (Spec Iss A) :(0124), 2006.
- J. Halderman, K. Lubitz, **S. Premaraj**, F.M. Beck, A.M. Mercado, P. Larsen, and K.W.L. Vig: Canine Eruption and Secondary Alveolar Bone Grafting in UCLP Patients, *Journal of Dental Research* 84 (Spec Iss A):3690, 2005.
- K. Lubitz, J. Halderman, **S. Premaraj**, F.M. Beck, A.M. Mercado, P. Larsen, and K.W.L. Vig, Canine Root Development and Alveolar Bone Grafting in UCLP Patients, *Journal of Dental Research* 84 (Spec Iss A) 2005.
- S. Premaraj**, J. Parker-Barnes, P.L. Winnard, and A.M. Moursi: Collagen gel delivery of TGF beta-3 gene in Calvarial osteoblast, *Journal of Dental Research* 83 (Spec Iss A):17, 2004.
- S. Premaraj**, F.M. Beck, P. Larsen, and K.W.L. Vig: Outcome of secondary alveolar bone grafting in cleft lip and palate patients, *Journal of Dental Research* 80(Spec Iss A):2949, 2002.
- S. Premaraj**, H. Tanaka, S. Konishi, K. Kubo, H. Maeda, S. Goto and Y. Kameyama, Effects of Cyclosporine-A on the alveolar bone in rats, *Journal of Dental Research* 77(IADR abstracts): 1999.
- H. Tanaka, **S. Premaraj**, J. Muramatsu, Y. Tsujikoka, H. Maeda and Y. Kameyama, Periodontal tissues of the growing Vitamin C Deficient Rats, *Journal of Dental Research* 77(IADR abstracts):975, 1998.