AADR March 2011 Abstracts (Summer 2010 Students)

Brian Chow – + 3 9 2 Q F R J H Q H V (D Q G (' L U H F W R U 3 U R W H L Q
Myeshia Edgerton – Birth Factors and Presence of Teeth in Infants
Tom Gutberg and Ryan Jensen – Assessment of implementation of a CAMBRA based program
Rahul Mehta and Ilia Oukhalov – Adolescent Overweight Status and Periodontal Changes Over Two Years
Ilia Oukhalov and Rahul Mehta – Inflammation in overweight versus healthy females during orthodontic therapy
Julia Salmeron – Characterization of the Salivary Proteome/Peptidome in Diabetics and Healthy Controls
Tucker VanYperen – Association of Salivary Adrenomedullin, Calprotectin and MMP-8 Levels With Age
Boonyapa Purt – Susceptibility of Gut Fusobacterium nucleatum Isolates to Human β-Defensin-3

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Friday, March 18, 2011: 2 p.m.-3:15 p.m.
Location: Hall C (San Diego Convention Center)
Presentation Type: Poster Session

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Objectives: + X P D Q β-defensin-3 (hBD-3) is overexpressed in human papilloma viral (HPV) infection and carcinoma in situ, both involving the stratum basale of the oral mucosa. Since preliminary studies have demonstrated that HPV 16 E6 protein promotes hBD-3 expression in oral epithelial cells, our objective was to determine if HPV oncogenes E6 and E7 could contribute to overexpression of hBD-3 in oral cancer.
Methods: Oral tumor cells (Hs-3) were infected with retroviral vectors containing E6 and E7 genes (24h), followed by RT-PCR and gel electrophoresis (2% agar) to determine changes in hBD-3 transcript levels of expression. Also, a 2.5kb hBD-3 promoter luciferase reporter was co-transfected (for 24h) with either an E6 or E7 expression vector into human embryonic kidney cells (HEK 293). Luciferase activity was measured after adding 50µl luciferin (10sec) to determine if E6 and E7 directly modulate hBD-3 gene expression.

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Objective: This study reports on whether birth factors were related to the presence of teeth in a cohort of 8 month old preterm very low birth weight (VLBW) and full-term normal birth weight (NBW) infants recruited as part of an ongoing longitudinal study investigating the relationship between birth variables and early childhood caries (ECC). Methods: Data from a total of 237 (151 VLBW: mean birthweight 1052+/-267 gms, 86 NBW: 3390+/-383 gms) infants who were seen at approximately 8 month corrected/chronological age for this visit was utilized. The infants were 66% African-American, 65% low socio-economic status, and 54% male. The caregivers were predominantly biological mothers with a mean age of 26.1 +/- 6.1 years, 53% with 12 years or less education, and 67% single. Birth factors were abstracted from medical charts and included birth group (VLBW and NBW), 1 and 5 minute Apgar scores, total days of hospitalization, feeding plan (breast milk, formula, both), gender, prenatal care, and maternal smoking and alcohol use. The infants received a visual dental exam to assess the presence/absence and the number of teeth at age 8 months. R Tw [(R -vi)-2 60.009

associated with periodontitis risk, no such relationship was found when comparing overweight and healthy females undergoing orthodontic therapy.

Characterization of the Salivary Proteome/Peptidome in Diabetics and Healthy Controls
Thursday, March 17, 2011: 2 p.m.-3:15 p.m.
Location: Hall C (San Diego Convention Center)
Presentation Type: Poster Session
J. SALMERON, Biological Sciences, School of Dental Medicine, Case Western Reserve University, Cleveland, OH, K. LUNDBERG, Case Center for Proteomics and Bioinformatics, Case Western Reserve University, Cleveland, OH, and R. JUREVIC, Department of Biological Sciences, School of Dental Medicine, Case Western Reserve University, Cleveland, OH

The constellation of oral effects of diabetes includes xerostomia, increased susceptibility to infection, complications in wound healing, increased incidence of periodontal disease, and other defect associated with epithelial barrier function. Proteomic and peptidomic analysis of saliva could lead to the identification of potential biomarkers for both diagnosis and monitoring of disease progression and therapeutic outcomes.
Objectives: Expression proteomics analysis using a label-free approach was performed on whole unstimulated saliva obtained from affected persons and controls.
Methods: A total of 3 saliva samples per subject were prepared from each group, which consisted of 20 individuals and was fractionated using a 3K cut off filter to isolate the peptidome from the proteome. Samples were prepared for Lys-C digestion. Digests were analyzed by LC/MS/MS via capillary liquid chromatography and a LTQ-FT. Automated differential quantification of peptides was accomplished using Rosetta Elucidator. Peptide and protein identifications were integrated with these quantifications and used for statistical analysis one way ANOVA.
Results: Utilizing label free protein expression enabled effective fractionation of a complex sample and robust protein quantification, leading to the identification and quantification of approximately 130 proteins and peptides.
Conclusion: Further analysis may uncover a relationship between some of these proteins and peptides with the diabetic condition.
Supported by grants from NIH/NIDCR: 1 K23DE016110-01, P01DE019759-01

Association of Salivary Adrenomedullin, Calprotectin and LL-37 Levels With Age
Thursday, March 17, 2011: 2 p.m.-3:15 p.m.
Location: Hall C (San Diego Convention Center)
Presentation Type: Poster Session
T. VANYPEREN[1], C. DEMKO[2], S.K. GHOSH[1], and A. WEINBERG[3], [1]Case Western Reserve University, Cleveland, OH, [2]Community Dentistry, Case Western Reserve University, Cleveland, OH, [3]Biological Sciences, Case Western Reserve University, Cleveland, OH

Antimicrobial peptides (AMPs) are natural antibiotics that provide a first line of defense against a wide spectrum of pathogens. These peptides may be particularly important in the saliva, where members of the microbial flora are present in high numbers.
Objective: To investigate age-related associations in salivary levels of antimicrobial peptides, adrenomedullin (ADM), calprotectin (S100A8/A9) and LL-37 (cathelicidin) in a cross-sectional study.
Methods: 4ml of un-stimulated saliva was collected from 146 healthy volunteer patients, age 8 to 78 years. The levels of calprotectin and LL-37 were measured using ELISA Kit from Hycult Biotech (Canton, MA) and the levels of ADM were measured using EIA kit from Phoenix Pharmaceuticals (Burlingame, CA). Concentrations of the AMPs were normalized with total salivary protein. Decayed/Missing/Filled Teeth (DMFT) and gingival index (GI) were recorded on all patients; periodontal measures of the 6 Ramjford teeth were obtained

patients. Association of the three AMPs with each other, age and oral health measures was analyzed with Pearson's or Spearman's correlation.
Results: Median levels (ug/mg of protein, range) of ADM were 3.6 (.2 – 22), calprotectin 3.7 (0, 130) and LL-37 7.9 (0 – 228). Calprotectin and LL-37 were more likely to have 'outlier' values. Inter-personal variability was observed across the full age range of subjects. LL37 was significantly correlated with both calprotectin (rho=.343) and ADM (rho=.367). Calprotectin level was inversely correlated with age (r=-.194, P=.02). Adjusted for age, higher calprotectin was associated with less caries experience, but with a higher proportion teeth with pocket depths greater than 4mm.
Conclusions: Calprotectin appears most influenced by age, with highest levels in the adolescent group and lowest in patients • \ H D U V $ G G L W L R Q D O R Q W R J H Q \ U H O D W H G V W X G L H with age, emphasizing birth through 2 years of age.
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