

## **CURRICULUM VITAE**

### **PERSONAL:**

Name: Robert A. Burne

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Department of Oral Biology,  
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### **EDUCATION:**

Baccalaureate:  
1981 Pennsylvania State University      B.S.

Graduate:  
1987 University of Rochester, New York      Ph.D.

### **ACADEMIC EXPERIENCE AND APPOINTMENTS:**

2015 – Jan. 16 – Feb. 15. Interim Dean, University of Florida College of Dentistry,  
Gainesville, Florida

2011-present Distinguished Professor, Department of Oral Biology, University of  
Florida, Gainesville, Florida

2010-present Associate Dean for Research, University of Florida College of Dentistry,  
Gainesville, Florida

2001- present Chair, Department of Oral Biology, University of Florida, Gainesville,  
Florida

2001- present Tenured Professor, Department of Oral Biology, University of Florida,  
Gainesville, Florida

1997-2001 Associate Professor of Microbiology and Immunology in the Center for Oral  
Biology, and Associate Professor of Dentistry, University of Rochester School  
of Medicine & Dentistry, Rochester, NY

1996-1997 Associate Professor, Departments of Dental Research and of Microbiology  
and Immunology, University of Rochester School of Medicine & Dentistry,  
Rochester, NY

1990-1996 Assistant Professor, Departments of Dental Research and Microbiology  
and Immunology, University of Rochester School of Medicine &  
Dentistry, , Rochester, NY

1987-1990 Post-doctoral Fellow, Departments of Dental Research and Microbiology

and Immunology, University of Rochester School of Medicine & Dentistry, , Rochester, NY

1983-1987 PhD student, Department of Microbiology and Immunology, University of Rochester School of Medicine & Dentistry, , Rochester, NY

1981-1983 Technical Associate, Department of Microbiology and Immunology, University of Rochester School of Medicine and Dentistry, Rochester, NY

**ADMINISTRATIVE/COMMITTEE EXPERIENCE:**

*University of Rochester*

Graduate Education in Biomedical Sciences Graduate (PhD) Program - Cluster Director, Oral Biology Cluster 1998-2001

Director, Graduate Program, Center for Oral Biology 1997-2001

Immunology, Microbiology Vaccine Biology Cluster Steering Committee 1998-2001

Representative for Oral Biology, Committee for Graduate Studies 1997-2001

Medical School Applicant Interviewer, 1992-2001

Infectious Diseases/Vaccine Biology Task Force, 1997

Faculty Research Incentives Committee, 1997

*University of Florida*

“Graduate Education Committee” An *ad hoc* committee constituted by Sr. VP-HSC to evaluate PhD programs in the biomedical sciences in HSC Colleges. March, 2015 to present.

Interim Dean, College of Dentistry, January 16, 2015 to February 15, 2015.

University of Florida Health Science Center Cancer Biology Preeminence Committee, June 2014 to present.

Council of Academic Chairs, PhD Program in Biomedical Sciences. Jan. 2015 – present.

College of Dentistry Dean Search Committee, October, 2013 – April, 2014, July, 2014..

University of Florida Health Science Center Strategic Planning Advisory Group member 2014-present

Metabolomics Preeminence Initiative Coordinating Committee 2013-present

Mucosal Immunology/Host:Microbiome Interaction Preeminence Initiative Coordinating Committee (Chair) 2013-present

Regularly service as Acting Dean of the College

Acting Director – UFCD/CTSI Dental Clinical Research Unit 2013-present

CTSI Executive Committee 2012 - present

CTS-IT Advisory Committee (CIAC)\_2012 - present

UFCD Visioning Steering Committee, 2011 – 2013

Ex-officio Member (As Assoc. Dean Research) – UFCD Research Committee, 2010-present

Member - IDP Graduate Education Advisory Council, 2001-present.

Member - Curriculum Committee, College of Dentistry, University of Florida, 2002-2003.

Member - Student Performance Evaluation Committee, College of Dentistry, University of Florida, 2002-2003.

Member - Executive Advisory Board, College of Dentistry, University of Florida, 2001-2011.

Member – Strategic Planning Committee, College of Dentistry University of Florida, 2002-2005; 2006-2008; 2011-present

Member – DMD Admissions Committee, UFCD, 2003-2005

Member – UFCD Faculty Senate Steering Committee, 2005-2007, 2008-2010

PI – UFCD Research Infrastructure Enhancement Planning Grant and UFCD Research Infrastructure Enhancement Planning Grant Award (\$4M total) 2005-present

Member – Accreditation Sub-committees (Institutional Effectiveness, Facilities and Resources) 2007-2008

Member – Emerging Pathogens Launch Team 2006 to 2008

Member – Workgroup on Research Bonuses – UFCD 2008

Member - Faculty Development Committee – UFCD – 2008 – 2011

Chair- Department of Oral Biology – UFCD 2001-present

Associate Dean for Research 2010 – UFCD – present

UFCD Strategic Planning Committee – 2010 – present

Member – CTSI Executive Operations Committee, 2011-present

Member - UF Research Computing Advisory Committee

Chair – Grants Management Workgroup

Member – Comprehensive Incentive Plan Workgroup

**PROFESSIONAL ORGANIZATIONS:**

American Society for Microbiology	1987-present
American Association for Dental Research	1984-present
International Association for Dental Research	1984-present
American Association for the Advancement of Science	1993-present
President--Microbiology and Immunology Section of the International Association for Dental Research, 1997-1999	
Group Program Chair --Microbiology and Immunology Section of the International Association for Dental Research	1999-2001
Organizer, 7 <sup>th</sup> International Conference of Streptococcal Genetics	2006

**HONORS AND AWARDS:**

Recipient, American Society for Microbiology Travel Fellowship Second ASM Conference on Streptococcal Genetics, Miami, Florida	May 1986
First Place, Predoctoral Category, Edward S. Hatton Competition International Association for Dental Research, The Hague, Netherlands	June 1986
Journal of Dental Research Gies Award Best Paper Published in the Journal from 7/86-6/87	March 1988
Wallace O. Fenn Award Best Thesis, University of Rochester SM&D	May 1988
American Association for Dental Research Bloc Travel Grant International Association for Dental Research Annual Meeting, Dublin, Ireland	June 1989
NIH/NIDR— T32 Cariology Training Program, 1987-1990	
Johnson & Johnson Focused Giving Grant Recipient, 1994-1996	

Group Program Chair, Microbiology and Immunology Section of the International Association for Dental Research, 1999-2001

Recipient, Johnson & Johnson Focused Giving Program Grant 1993-1996

Mentor, 2<sup>nd</sup> Place, International Association for Dental Research Hatton Award  
Predoctoral Category June, 1996

President, Microbiology and Immunology Section of the International Association for Dental Research, 1997-1999

Mentor, 1<sup>st</sup> Place, International Association for Dental Research Hatton Award  
Predoctoral Category June 1998

Oral Biology and Medicine Study Section, *ad hoc* Member 1999-2002, Member 2002-2003

Alumni Award for Research, University of Rochester Department of Dentistry/Center for Oral Biology, 2003.

Fellow, American Association for the Advancement of Science 2004

Organizer, Amer. Soc. Microbiol. 7<sup>th</sup> International Conference on the Streptococcal Genetics. June 2006, Saint Malo, France

University of Florida Faculty Achievement Recognition Award 2007

Omicron Kappa Upsilon 2008

International Association for Dental Research Distinguished Scientist Award for Research in Dental Caries 2009

Distinguished Professor, University of Florida 2011

University of Rochester School of Medicine and Dentistry Alumni Achievement Award, 2013.

#### **TEACHING MATERIALS DEVELOPED:**

Extensive handout materials for all lectures, extensive powerpoint presentations for lectures since 2001.

#### **PRIMARY TEACHING RESPONSIBILITIES:**

*University of Rochester*

Oral Microbiology (MBI/DEN 581) - Course Director

Fundamentals of Dental Caries (DEN 580)

Industrial Microbiology (MBI 445/CHE 468)

Mechanisms of Microbial Pathogenesis (MBI 414)  
Biology of the Periodontium (ORB 556)

Teaching Assistant

Microbial Genetics (MBI 421/521), , Department of Microbiology, University of Rochester, School of Medicine, 1985

Other

Summer Course on Biotechnology, 1988, University of Rochester, School of Medicine and Dentistry

*University of Florida*

Section Director - IDP Core Course - Microbiology and Immunology Section.  
2002-2003.

Lecturer – IDP Core Course 2002-2007

Lecturer - GMS 6001/2 - Oral Biology 2001 - 2006

Lecturer - Advanced Concentration Module on Bacterial Pathogenesis

Lecturer - DEN5127 2002-present

**RESEARCH AND GRANT ACTIVITY:**

**Projects in Progress**

***CATABOLITE MODIFICATION OF GENE EXPRESSION IN ORAL BACTERIA***

The goals of this project are to understand the phenotypic capabilities of the bacterium *Streptococcus mutans* as a function of carbohydrate source and availability. This approach involves the coupling of techniques designed to modulate the physiology of the organisms, such as continuous chemostat culture and cultivation of bacteria immobilized on surfaces in biofilms, with the use of molecular and genomic approaches to characterize *cis*- and *trans*- acting factors governing gene expression in response to carbohydrate source and amount.

***Stress and Adaptation in Streptococci***

Oral bacteria are continually exposed to large changes in environmental pH, nutrient availability, redox balances, and various immune and non-immune defenses of the host. To survive, to persistently colonize, and to initiate disease, the bacteria must rapidly respond to these changes at the genetic and physiologic level. The goals of this project are to understand the molecular basis for the interrelationship of the stress regulon, signal transduction systems and virulence expression by oral streptococci, particularly in relation to biofilm maturation and homeostatic mechanisms used by biofilm populations.

***Alkali Production in pH Homeostasis and Microbial Ecology***

A primary determinant in inhibiting the initiation and progression of dental caries is the production of base, primarily in the form of ammonia, by plaque microorganisms. Over the past two decades, we have analyzed fundamental genetic

and physiologic aspects of arginine, urea and agmatine catabolism by oral bacteria. We have developed numerous strains of oral microorganisms to assess the role of alkali generation in homeostasis and biofilm ecology using *in vitro* and *in vivo* model systems. Current work continues on the genetic regulation of these systems by growth domain, pH, substrate and biofilm growth, as well as on the development and application of technologies to study the role of alkali generation in oral diseases in human populations.

### ***Oxygen and Virulence Expression in Oral Bacteria***

We have recently published that oxygen profoundly modifies core physiology, cell surface biogenesis and the expression of critical virulence attributes by *S. mutans*. The goals of this project are i) to dissect the phenotypic properties of oral streptococci as a function of the atmosphere to which they are exposed, ii) to use proteomics to characterize transcriptionally and post-transcriptionally induced modifications to the cell surface and iii) to identify the underlying molecular basis for differential gene expression in response to oxygen by *S. mutans*.

### ***Regulation of gene expression by small peptides***

Genetic competence can be induced in many Gram-positive bacteria through small signal peptides. In *S. mutans*, two peptides, XIP and CSP, can induce competence through two separate signal transduction cascades. Through collaborations with the Department of Physics, we utilize microfluidics to study how sub-populations of bacteria respond to these signal inputs. In addition, we have discovered three additional peptides that are encoded within the reading frames of other genes and one peptide that interacts with a two-component system. Through different mechanisms, these four peptides play a dominant and antagonistic role in competence development while having a profound impact on the ability of the organism to form biofilms, tolerance acid and oxidative stress and to express other properties that are critical to persistence and virulence.

## **GRANT FUNDING**

### **ACTIVE**

1 R01 DE025832-01	(Burne)	03/01/16 - 02/28/21
2.4 calendar		
NIH/NIDCR		\$426,143
Probiotics that moderate pH and antagonize pathogens to promote oral health		

Probiotic therapy, where naturally occurring bacteria with beneficial properties are used to promote health by preventing the establishment or outgrowth of pathogens, holds tremendous promise for control of oral diseases. The research to be conducted here unites the most current understanding of the cause of oral diseases with cutting-edge genomic, molecular, *in vitro*, *in vivo* and clinical studies to dissect the basis for probiotic effects of beneficial bacteria. Collectively, the research will establish a sound foundation for the design of new

therapies to detect, diagnose and prevent dental caries and other oral infectious diseases.

1 R01 DE023339-03 (MPI – Hagen/Burne) 12/13/13-11/30/18  
 2.4 calendar  
 NIH/NIDCR/NIAID \$250,000  
 Environmental regulation of gene expression dissected by microfluidics

The goal of this project is to use a sophisticated microfluidics system and fluorescent read-outs of gene expression to dissect the way in which individual bacteria respond to complex combinations of signals and environmental conditions to modify their virulence. The studies will shed new light on ways to control oral diseases, such as dental caries, and have high relevance to other infectious diseases as these signaling pathways are present in a variety of streptococcal bacteria.

2 R01 DE13239-18 (Burne) 9/1/99-06/30/20  
 2.4 calendar  
 NIH/NIDCR \$250,000  
 Genetics and Physiology of Oral Biofilms

The major goals of this project are to dissect the molecular basis by which novel and highly unusual genetic regulatory circuits encoding unique peptides integrate genetic competence with the ability of *S. mutans* to form biofilms, to tolerate environmental stresses, and to govern growth-survival-cell death decisions in a manner that optimizes the pathogenic potential of this organism.

2 T90 DE021990-06 (Burne) 07/01/11-06/30/21  
 1.0 calendar  
 NIH/NIDCR \$491,039  
 Comprehensive Training Program in Oral Biology

The primary goal of this project is to produce a group of highly skilled and interactive scientists who will generate new knowledge and translate discoveries to tangible advances in the detection, prevention, treatment and cure of diseases and abnormalities of the oral and craniofacial complex.

2 R90 DE022530-06 (Burne) 07/01/11-06/30/21  
 .2 calendar  
 NIH/NIDCR \$66,354  
 Comprehensive Training Program in Oral Biology

The major goal of this project is to provide advanced post-doctoral training in Oral Biology for individuals holding DDS/DMD-PhD degrees.

5 R01 DE012236-19 (Burne) 04/01/97-4/30/18  
 3.0 calendar  
 NIH/NIDCR \$250,000  
 Gene Regulation and Physiology of *Streptococcus mutans*

The major goals of this project involve a detailed genetic and physiologic analysis of carbohydrate metabolism and control of gene expression in response to pH, carbohydrate source and carbohydrate availability.

A-2014-022-OC (Burne) 08/12/14 – 08/11/17  
 .6 calendar  
 Colgate-Palmolive Company \$130,578  
 Effects of arginine on virulence-related properties of cariogenic *Streptococcus mutans*  
 Arginine in oral health care formulations has been shown to have an inhibitory effect on the initiation and progression of dental caries. This project will assess the effects of arginine on pathways that are important for the manifestation of virulence by the dental caries pathogen *Streptococcus mutans*.

#### PENDING

N/A

#### PREVIOUS RESEARCH GRANT AWARDS

5T32DE007200  
 Robert A. Burne  
 9/30/90 – 6-30-11  
 NRSA INSTITUTIONAL TRAINING PROGRAM IN ORAL BIOLOGY  
 Pre/Post-doctoral and short-term training in cutting edge research in oral and craniofacial sciences

NIH/NIDCR R01 DE10362  
 Molecular Biology of Oral Alkali Production  
 Robert A. Burne  
 8/1/92-6/30/11  
 \$1,567,666 (Total direct costs requested)  
 20% Effort

NIH/NIDCR K23DE015285  
 Evangelia Morou-Bermudez (University of Puerto Rico, San Juan)

Urease and Dental Caries Activity in Children

7/1/05 – 6/03/10

Co-mentor

0% effort

NIH/NIDCR U24 U24DE016509-04

Florida Research Infrastructure Enhancement Award

Robert A. Burne

9/24/04 – 8/31/08 NIH/NIDCR

\$2.9M (Total)

15% Effort

NIH/NIDCR DE17101

Adaptive acid tolerance of *Streptococcus sobrinus*

Jose Lemos

7/17/06 – 7/15/08

Consultant

NIH/NIDCR R24 DE15490

Awards for Improvement of Research Infrastructure

Robert A. Burne

8/1/03 – 7/31/04

\$129,638 (Total)

10% effort

NIH/NIDCR T32 DE07165

Training Program in Oral Infectious Diseases

Robert A. Burne.

7/1/01-6/30/06

\$2,186,540 (Total direct costs)

No Salary

Upon moving to Florida, this grant was transferred to faculty in Rochester

NIH/NIDCR T35 DE07189-11

Short-Term Training: Students in Health Professional Schools

Robert A. Burne

9/15/98-9/14/03

\$106,625 (Total direct cost)

No Salary

Upon moving to Florida, this grant was transferred to faculty in Rochester

NIH/NIDCR P01 DE11549

Environmental Influences and Dental Caries

Subproject "Acid Adaptation and Membrane Physiology"

William H. Bowen

3/1/01-12/31/04

\$746,308 (Total direct cost for subproject)

10% Effort

Upon leaving Rochester, relinquished effort on this award

NIH/NIDR R03 DE10243

Molecular Analysis of Oral Spirochete Surface Proteins

Robert A. Burne, Jr.

5/1/92-4/30/94

\$49,973

NIH/NIDCR 5 R01 DE06127  
Acid-Base Physiology of Oral Streptococci  
Robert E. Marquis  
8/1/96-7/31/01  
\$645,686  
5% Effort

Johnson & Johnson, Inc. (Research continues in DE13239)  
Biofilms and Virulence Expression  
Robert A. Burne, Jr.  
12/1/93-11/30/96  
\$105,000

NIH/NIDR R29 DE09878 (Competed successfully as R01 DE12236 above)  
Molecular Genetics of Polysaccharide Degradation  
Robert A. Burne, Jr.  
3/1/92-2/28/97  
\$349,949

Unilever, UK  
Control of plaque physiology  
Co-investigators: R. A. Burne/R. E. Marquis  
1/96-12/98  
200,000 British pounds  
5% Effort

TRAINING GRANTS

*Previous*

NIH T32 DE07200 (R. A. Burne, P.I.)  
Institutional National Research Service Award in Oral Biology  
Associate Director

NIH T35 DE07189 (R. A. Burne, PI)  
"Short-Term Training: Students in Health Professional Schools"

NIH T32 DE07165 (R. A. Burne, PI)  
" Training Program in Oral Infectious Diseases"

NIH K16 DE00159 (L. A. Tabak, PI)  
"Dental Scientist Award"

NIH T32 DE07202 (J.E. Melvin, PI)  
"Oral Cellular and Molecular Biology Training Grant"

NIH T32 AI07362 (B. H. Iglewski, PI)  
"Pathogenesis Training Grant"

**REFEREED PUBLICATIONS:**

- Burne, R. A., B. Rubinfeld, W. H. Bowen, and R. E. Yasbin.** 1986. Tight genetic linkage of a glucosyltransferase and dextranase of *Streptococcus mutans* GS-5. *J. Dent Res.* **65**:1392-1401.
- Burne, R. A., B. Rubinfeld, W. H. Bowen and R. E. Yasbin.** 1986. Cloning and expression of a *Streptococcus mutans* glucosyltransferase gene in *Bacillus subtilis*. *Gene* **47**:201-209.
- Burne, R. A., K. Schilling, W. H. Bowen and R. E. Yasbin.** 1987. Cloning and partial characterization of a  $\beta$ -D-fructosidase of *Streptococcus mutans* GS-5, p 220-224. In J. J. Ferretti and R. Curtiss III (ed.) *Streptococcal Genetics*. American Society for Microbiology, Washington, D.C.
- Burne, R. A., K. Schilling, W. H. Bowen and R. E. Yasbin.** 1987. Cloning, purification, and characterization of an exo- $\beta$ -D-fructofuranosidase of *Streptococcus mutans* GS-5. *J. Bacteriol.* **169**:4507-4517.
- Burne, R. A., D. T. Parsons, and R. E. Marquis.** 1989. Cloning and expression in *Escherichia coli* of the genes of the arginine deiminase system of *Streptococcus sanguis*. *Infect. Immun.* **57**:3540-3548.
- Burne, R. A., D. T. Parsons, and R. E. Marquis.** 1991. Environmental variables affecting arginine deiminase expression in oral streptococci, pp. 276-280. In: G. Dunny, P. Cleary and L. McKay (Eds.), *Genetics and Molecular Biology of Streptococci, Lactococci, and Enterococci*. American Society for Microbiology, Washington, D.C.
- Marquis, R. E., A. C. Casiano-Colón, and R. A. Burne.** 1992. Role of the arginine deiminase system in the acid-base physiology of oral streptococci. In: P. P. DeDeyn, B. Marescau, and V. Stallone (Eds.), *Guanidino Compounds in Biology and Medicine*. John Libbey & Co., Ltd., London, England.
- Wexler, D. L., J. E. C. Penders, W. H. Bowen, and R. A. Burne.** 1992. Characteristics and cariogenicity of fructanase deficient mutants of *Streptococcus mutans*. *Infect. Immun.* **60**:3673-3681.
- Burne, R. A. and J. E. C. Penders.** 1992. Characterization of the *Streptococcus mutans* GS-5 *fruA* gene encoding exo- $\beta$ -D-fructosidase. *Infect. Immun.* **60**:4621-4632.
- Wexler, D. L., M. C. Hudson, and R. A. Burne.** 1993. *Streptococcus mutans* fructosyltransferase (*ftf*) and glucosyltransferase (*gtfBC*) operon fusion strains in continuous culture. *Infect. Immun.* **61**:1259-1267.
- Yamashita, Y., W. H. Bowen, R. A. Burne, and Kuramitsu, H. K.** 1993. Role of the *Streptococcus mutans* *gtf* genes in caries induction in the specific pathogen-free rat model. *Infect. Immun.* **61**:3811-3817.

- Burne, R. A. and R. G. Quivey, Jr.** 1994. Use of transposons to dissect pathogenic strategies of gram-positive bacteria. *Methods Enzymol.* 235:405-426.
- Burne, R. A. and J. E. C. Penders.** 1994. Differential localization of the *Streptococcus mutans* GS-5 fructan hydrolase enzyme, FruA. *FEMS Microbiology Letters* 121:243-250.
- Chen, Y.-Y., M. and R. A. Burne.** 1995. Molecular analysis of the urease of *Streptococcus salivarius* 57.1. In: J. J. Ferretti, M. S. Gilmour, T. R. Klaenhammer (Eds.), *Genetics of Streptococci, Enterococci, and Lactococci.* Dev. Biol. Stand. Vol. 85:387-392.
- Burne, R.A., J. E. C. Penders, D. L. Wexler, G. C. Jayaraman, and K. A. Clancy.** 1995. Regulation of fructan degradation by *Streptococcus mutans*. In: J. J. Ferretti, M. S. Gilmour, T. R. Klaenhammer (Eds.), *Genetics of Streptococci, Enterococci, and Lactococci.* Dev. Biol. Stand. Vol. 85:323-331.
- Heinzerling, H., J. E. C. Penders and R.A. Burne.** 1995. Identification of the *fliG* homologue of *Treponema denticola*. *Gene* 161:69-73.
- Jayaraman, G. C. and R. A. Burne.** 1995. DnaK expression in response to heat shock of *Streptococcus mutans*. *FEMS Microbiol. Letters.* 131:255-261.
- Chen, Y.-Y. M., K. A. Clancy, and R. A. Burne.** 1996. *Streptococcus salivarius* Urease: Genetic and biochemical characterization, and expression in a dental plaque streptococcus. *Infect. Immun.* 64:585-592.
- Chen, Y.-Y. M. and R. A. Burne.** 1996. Analysis of *Streptococcus salivarius* urease expression using continuous chemostat culture. *FEMS Microbiol. Letters* 135:223-229.
- Burne, R. A., Y.-Y. M. Chen, D. L. Wexler, H. Kuramitsu, and W. H. Bowen.** 1996. Cariogenicity of *Streptococcus mutans* strains with defects in fructan metabolism assessed in a program-fed specific-pathogen-free rat model. *J. Dent. Res.* 75:1572-1577.
- Heinzerling, H., M. Olivares, and R. A. Burne.** 1997. Transcriptional analysis of constituents of the *flgB* operon of *Treponema denticola* and their heterologous expression in enteric bacteria. *Infect. Immun.* 65:2041-2051.
- Burne, R. A., J. E. C. Penders, and Y. M. Chen.** 1997. Examination of gene expression in *Streptococcus mutans* growing in biofilms *in vitro*. *Arch. Dental Research.* 11:100-109.
- Clancy, A. and R. A. Burne.** 1997. Construction of a recombinant ureolytic *Streptococcus mutans* and its use to demonstrate the relationship of urease activity to pH modulating capacity. *FEMS Microbiology Letters.* 151(2):205-211
- Jayaraman, G.C., J. E. C. Penders and R. A. Burne** 1997. Transcriptional analysis of the *Streptococcus mutans hrcA*, *grpE*, and *dnaK* genes and regulation of expression in response to heat and acid stresses. *Mol. Microbiol.* 25:329-341. PMID:9282745

- Burne, R. A.** 1998 Regulation of gene expression in adherent populations of oral streptococci. pp. 55-71, *In Proceedings of the 2nd Annual Indiana Conference. Microbial Pathogenesis: Current and Emerging Issues.*" Eds. D. J. LeBlanc, M.S. Lantz, and L. M. Switalski. Indiana University Press, Indianapolis.
- Chen, Y.-Y. M., T. H. Hall, and R. A. Burne** 1998. *Streptococcus salivarius* urease expression: Involvement of the phosphoenolpyruvate:sugar phosphotransferase system. *FEMS Microbiol. Letters* 165:117-122
- Burne, R. A.** 1998. Oral streptococci...products of their environment. *J. Dent. Res.* 77:445-452.
- Chen, Y.-Y. M., C. A. Weaver, D. R. Mendelsohn and R. A. Burne** 1998. Transcriptional regulation of the *Streptococcus salivarius* 57.I urease operon. *J. Bacteriol.* 180:5769-5775.
- Burne, R. A. and Y. Y. M. Chen.** 1998. The use of continuous flow bioreactors to explore gene expression and physiology of suspended and adherent populations of oral streptococci. *Meth. Cell Sci.* 20:181-190.
- Morou-Bermudez, E. and R. A. Burne** 1999. Genetic and physiologic characterization of the urease of *Actinomyces naeslundii*. *Infect. Immun.* 67:504-512
- Burne, R. A., Z. T. Wen, Y.-Y. M. Chen, and J. Penders.** 1999. Regulation of expression of the fructan hydrolase of *Streptococcus mutans* GS-5 by induction and carbon catabolite repression. *J. Bacteriol.* 181:2863-2871.
- Weaver, C. A., Y. M. Chen and R. A. Burne.** (2000) Inactivation of Enzyme I of the sugar phosphotransferase system of *Streptococcus salivarius*: Effects on growth and urease expression. *Microbiol.* 146: 1179-1185.
- Clancy, K. A., S. Pearson, W. H. Bowen and R. A. Burne.** (2000) In vivo characterization of recombinant, ureolytic *Streptococcus mutans* demonstrates an inverse relationship between dental plaque ureolytic capacity and cariogenicity. *Infect. Immun.* 68:2621-2629.
- Li, Y. H., Y. M. Chen, and R. A. Burne** (2000) Regulation of urease gene expression by *Streptococcus salivarius* growing in biofilms. *Environ. Microbiol.* 2:169-177.
- Lemos, J. A. C., R. A. Burne and A. C. D. Castro.** (2000) Molecular cloning, purification and immunological responses of recombinants DnaK and GroEL from *Streptococcus pyogenes*. *FEMS Immunol. Med. Microbiol.* 28:121-128
- Bergeron, L. J., E. Morou-Bermudez and R. A. Burne.** (2000) Characterization of the fructosyltransferase gene of *Actinomyces naeslundii* WVU45. *J. Bacteriol.* 182:3649-3654.
- Chen, Y. M., C. A. Weaver and R. A. Burne.** (2000) Dual role of the urease of *Streptococcus salivarius*. *J. Bacteriol.* 182:4667-4669.

- Morou-Bermudez, E., and R. A. Burne.** (2000) Regulation of expression of the urease genes of *Actinomyces naeslundii*. *Infect. Immun.* 68:6670-6676.
- Wen, Z. T., and R. A. Burne** (2001). Construction of a new integration vector for use in *Streptococcus mutans*. *Plasmid* 45:31-36.
- Bergeron, L. J. and R. A. Burne.** (2001) The roles of the fructosyltransferase and levanase sucrose of *Actinomyces naeslundii* in fructan and sucrose metabolism. *Infect. Immun.* 69:5395-402
- Li, Y. H. and R. A. Burne.** (2001) Regulation of the *gtfBC* and *ftf* genes of *Streptococcus mutans* in Biofilms in Response to pH and Carbohydrate. *Microbiology* 147:2841-2848
- Lemos, J. A., Y. M. Chen and R. A. Burne.** (2001) Genetic and physiologic analysis of the *groE* operon and the role of the HrcA repressor in stress gene regulation and acid tolerance in *Streptococcus mutans*. *J. Bacteriol.*183:6074-6084.
- Bhagwat, S. P., J. Nary, and R. A. Burne** (2001) Effects of mutating putative two-component systems on biofilm formation by *Streptococcus mutans* UA159. *FEMS Microbiology Letters* 205:225-230.
- Wen, Z. T., C. Browngardt and R. A. Burne.** (2001) Characterization of two operons that encode components of the fructose-specific enzymes II of the sugar:phosphotransferase system of *Streptococcus mutans*. *FEMS Microbiology Letters* 205:337-342
- Wen Z. T. and R. A. Burne** (2002) Analysis of *cis*- and *trans*-acting factors involved in regulation of the *Streptococcus mutans* fructanase gene (*fruA*) *J. Bacteriol.* 184:126-133
- Wen, Z. T. and R. A. Burne** (2002) Functional genomics approach to identifying genes required for biofilm formation by *Streptococcus mutans*. *Appl. Environ. Microbiol.* 68:1196-1203.
- Chen, Y. M., M. J. Betzenhauser, J. A. Snyder, and R. A. Burne** (2002) Pathways for Lactose/Galactose Catabolism by *Streptococcus salivarius*. *FEMS Microbiology Lett.* 209:75-79.
- Lemos, J. A. C. and R. A. Burne** (2002) Regulation and physiological significance of the *clp* regulon of *Streptococcus mutans*. *J. Bacteriol.* 184(22):6357-66.
- Chen, Y. M. J. Betzenhauser and R. A. Burne** (2002) *cis*-Acting elements that regulate the low-pH-inducible urease operon of *Streptococcus salivarius*. *Microbiology.* 148:3599-608.
- Dong, Y., Y. M. Chen, J. A. Snyder and R. A. Burne.** (2002) Isolation and molecular analysis of the gene cluster for the arginine deiminase system from *Streptococcus gordonii* DL1. *Appl. Env. Microbiol.* 68:5549-53

- Abranches, J., Y. M. Chen and R. A. Burne** (2003) Characterization of *Streptococcus mutans* strains deficient in EIIAB<sup>Man</sup> of the sugar phosphotransferase system. *Appl Environ Microbiol.* 69:4760-4769.
- Chen, Y. M., and R. A. Burne** (2003) Identification and Characterization of the Nickel Uptake System for Urease Biogenesis in *Streptococcus salivarius* 57.1. *J. Bacteriol.* 185:6773-6779.
- Shu, M, C. Browngardt, Y. M. Chen, and R. A. Burne** (2003) The Role of Urease Enzymes in Stability of a 10-species Oral Biofilm Consortium Cultivated in a Constant-Depth Film Fermentor. *Infect. Immun.* 71:7188-7192.
- Lemos, J. A. C., T. A. Brown Jr., and R. A. Burne** (2004) Effects of RelA on key virulence properties of planktonic and biofilm populations of *Streptococcus mutans*. *Infect. Immun.* 72:1431-1440.
- Griswold, A. R., Y. M. Chen and R. A. Burne** (2004) Analysis of an agmatine deiminase gene cluster in *Streptococcus mutans* UA159. *J. Bacteriol.* 70:1902-1904.
- Griswold, A. R., Y. M. Chen, J. A. Snyder and R. A. Burne** (2004) Characterization of the arginine deiminase operon of *Streptococcus rattus* FA-1. *Appl. Environ. Microbiol.* 70:1321-1327.
- Dong, Y., Y. M. Chen and R. A. Burne** (2004) Analysis of *cis*- and *trans*-acting factors in regulation of the arginine deiminase system of *Streptococcus gordonii* by catabolite repression and oxygen. *J. Bacteriol.* 186:2511-2514.
- Wen, Z. T., and R. A. Burne** (2004) LuxS-mediated signaling in *Streptococcus mutans* is involved in regulation of acid and oxidative stress tolerance and biofilm formation. *J. Bacteriol.* 186:2682-2691.
- Laport, M. S., J. A. C. Lemos, M. F. Bastos, R. A. Burne and M. Giambiagi-de Marval** (2004) Transcriptional analysis of the *groE* and *dnaK* heat shock operons of *Enterococcus faecalis*. *Res. Microbiol.* 155:252-258.
- Nascimento, M. M., J. A. C. Lemos, J. Abranches, R. B. Gonçalves and R. A. Burne.** (2004) The adaptive acid tolerance response of *Streptococcus sobrinus*. *J. Bacteriol* 186:6383-6390.
- Abranches, J., Y. M. Chen and R. A. Burne** (2004) Galactose metabolism by *Streptococcus mutans*. *Appl. Environ. Microbiol.* 70:6047-6052.
- Lemos, J. A. C., J. Abranches and R. A. Burne** (2004) Responses of cariogenic streptococci to environmental stress. *Curr. Issues. Mol. Biol.* 7:95-108.
- Browngardt, C., Z. T. Wen and R. A. Burne** (2004) RegM is required for optimal fructosyltransferase and glucosyltransferase gene expression in *Streptococcus mutans*. *FEMS Microbiol. Lett.* 240:75-79
- Antonelli, P. J., J. C. Lee and R. A. Burne** (2004) Bacterial biofilms may contribute to persistent cochlear implant infection. *Otol Neurotol.* 2004 25:953-957.

- Wen, Z. T., P. Suntharaligham, D. G. Cvitkovitch and R. A. Burne** (2005) Trigger factor in *Streptococcus mutans* is involved in stress tolerance, competence development and biofilm formation. *Infect. Immun.* 73:219-225.
- Lemos, J. A. C., J. Abranches, and R. A. Burne** (2005) Responses of cariogenic streptococci to environmental stress. *Curr. Issues Mol. Biol.* 7:95-107
- Ahn, S-J., J. A. C. Lemos and R. A. Burne** (2005) Role of HtrA in growth and competence of *Streptococcus mutans* UA159. *J. Bacteriol.* 187:3028-3038.
- Brown, T. A. Jr., R. N. Frank, Y. M. Chen, J. A. Lemos and R. A. Burne** (2005) A hypothetical protein of *Streptococcus mutans* is critical for biofilm formation. *Infect. Immun.* 73:3147-3151
- Laport, M. A., L. Lima dos Santos, J. A. C. Lemos, M. F. Bastos, R. A. Burne and M. Giambiagi-deMarval.** (2006) Organization of the heat-shock *dnaK* and *groE* operons of the nosocomial pathogen *Enterococcus faecium*. *Res. Microbiol.* 157:162-168.
- Lemos, J. A. C., J. Abranches and R. A. Burne** (2005) Role of the MazEF and RelBE toxin-antitoxin modules in growth arrest and stress survival in *Streptococcus mutans* UA159. *FEMS Microbiol. Lett.* 253:251-257.
- Abranches, J., J. A. Lemos and R. A. Burne** (2006) Osmotic stress responses of *Streptococcus mutans* UA159. *FEMS Microbiol. Lett.* 255:240-246.
- Griswold, A., M. Jameson-Lee and R. A. Burne** (2006) Regulation and physiologic significance of the agmatine deiminase system of *Streptococcus mutans* UA159. *J. Bacteriol.* 188:834-841.
- Zeng, L., Y. Dong and R. A. Burne** (2006) Characterization of *cis*-acting sites controlling arginine deiminase expression in *Streptococcus gordonii*. *J. Bacteriol.* 199:941-949.
- Koo, H, J. Seils, J. Abranches, R. A. Burne, W. H. Bowen, R. G. Quivey.** (2006) Influence of apigenin on *gtf* gene expression in *Streptococcus mutans* UA159. *Antimicrob. Agents Chemother.* 50L5420546.
- Tanzer, J. M., A. Thompson, Z. T. Wen and R. A. Burne.** (2006) *Streptococcus mutans*: Fructose transport, xylitol resistance and virulence. *J. Dent. Res.* 85:369-373
- Ahn, S-J., Z. T. Wen and R. A. Burne** (2006) Multi-level control of competence development and stress tolerance in *Streptococcus mutans* UA159. *Infect. Immun.* 74:1631-1642.
- Wen, Z. T., H. V. Baker and R. A. Burne** (2006) Influence of BrpA on critical virulence attributes of *Streptococcus mutans*. *J. Bacteriol.* 188:2983:2992
- Abranches, J., M. M. Candella, Z. T. Wen, H. V. Baker and R. A. Burne.** (2006)

Different roles of EIIAB<sup>man</sup> and EII<sup>glc</sup> in regulation of energy metabolism, biofilm development and competence in *Streptococcus mutans* J. Bacterio. 188:3748-3756

**Ahn, S. J. and R. A. Burne** (2006) The *atlA* operon of *Streptococcus mutans*: role in autolysin maturation and cell surface biogenesis J. Bacteriol. 188:6877-6888.

**Zeng, L., Z. T. Wen and R. A. Burne** (2006) A novel signal transduction system and feedback loop regulate fructan hydrolase gene expression in *Streptococcus mutans*. Mol. Microbiol. 62:187-200.

**Burne, R. A., D. E. Bessen, J. R. Broadbent and J. P. Claverys** (2007) The seventh international conference on streptococcal genetics. J. Bacteriol. 189:1209-1218.

**Shu, M., E. Morou-Bermudez, E. Suárez-Pérez, C. Rivera-Miranda, C. M. Browngardt, Y. M. Chen, I. Magnusson, and R. A. Burne** (2007) The relationship between dental caries status and dental plaque urease activity. Oral Microbiol. Immunol. 22:61-66

**Lemos, J. A., Y. Luzardo and R. A. Burne** (2007) Physiologic effects of forced down-regulation of *dnaK* and *groE* expression in *Streptococcus mutans*. J. Bacteriol. 189:1582-1588.

**Johnson T. A., K. A. Loeffler, R. A. Burne, C. N. Jolly, and P. J. Antonelli** (2007) Biofilm formation in cochlear implants with cochlear drug delivery channels in an *in vitro* model. Otolaryngol Head Neck Surg. 2007 Apr;136(4):577-82.

**K. A. Loeffler, T. A. Johnson, R. A. Burne, and P. J. Antonelli** (2007) Biofilm formation in an *in vitro* model of cochlear implants with removable magnets. Otolaryngol Head Neck Surg. 2007 Apr;136:583-88.

**Nepomuceno, R. S. L, M. B. Tavares, J. A. Lemos, A. R. Griswold, J. L. Ribeiro, A. Balan, K. S. Guimarães, S. Cai, R. A. Burne, L. C. S. Ferreira and R. C. C. Ferreira.** (2007) The oligopeptide (*opp*) gene cluster of *Streptococcus mutans*: identification, prevalence and characterization. Oral Micro. Immunol. 22:277-284.

**Chung, K. K., J. F. Schumacher, E. M. Sampson, R. A. Burne, P. J. Antonelli, and A. B. Brennan.** (2007) Impact of engineered surface microtopography on biofilms formation of *Staphylococcus aureus*. Biointerphases. 2:89-94

**Ahn S. J., and R. A. Burne.** (2007) Effects of oxygen on biofilm formation and the *AtIA* autolysin of *Streptococcus mutans*. J Bacteriol. 189:6293-6302.

**Lemos, J. A., V. K. Lin, M. M. Nascimento, J. Abranches, and R. A. Burne.** (2007) Three gene products govern (p)ppGpp production by *Streptococcus mutans*. Mol Microbiol. 65(6):1568-81

**Ahn, S. J., Z. T. Wen and R. A. Burne** (2007) Effects of oxygen on virulence traits of *Streptococcus mutans*. J. Bacteriol. 189:8519-8527.

- Nascimento, M. M., J. A. Lemos, J. Abranches, V. K. Lin and R. A. Burne** (2007) The role of RelA of *Streptococcus mutans* in global control of gene expression. J. Bacteriol. 190:28-36.
- Chen, Y. M., C. W. Feng, C. F. Chiu and R. A. Burne** (2008) The *cadDX* operon of *Streptococcus salivarius* 57.1. Appl. Environ. Microbiol. 74:1642-5.
- Abranches J., M. M. Nascimento, L. Zeng, C. M. Browngardt, Z. T. Wen, M. F. Rivera, R. A. Burne.** (2008) CcpA regulates central metabolism and virulence gene expression in *Streptococcus mutans*. J Bacteriol. 190:2340-9.
- Lemos, J. A., M. M. Nascimento, V. K. Lin, J. Abranches and R. A. Burne.** (2008) Global regulation by (p)ppGpp and CodY in *Streptococcus mutans*. J. Bacteriol. 190:5291-5299
- Liu, Y, Y. Dong, M. Chen and R. A. Burne** (2008) Environmental and growth phase regulation of the arginine deiminase genes of *Streptococcus gordonii*. Appl. Environ. Microbiol. 74:5023-5030.
- Ahn, S. J., S. J. Ahn, Z. T. Wen, L. J. Brady and R. A. Burne** (2008) Characteristics of biofilm formation by *Streptococcus mutans* in the presence of saliva. Infect. Immun. 76:4259-4268
- Zeng, L., and R. A. Burne** (2008) Multiple sugar:phosphotransferase system permeases participate in catabolite modification of gene expression in *Streptococcus mutans*. Mol. Microbiol. 70:197-208.
- Lemos, J. A., and R. A. Burne** (2008) A model of efficiency: stress tolerance by *Streptococcus mutans*. Microbiology 154:3247-3255.
- Griswold, A. R., M. M. Nascimento, and R. A. Burne** (2009) Distribution, regulation and role of the agmatine deiminase system in mutans streptococci. Oral Micro. Immunol. 24:79-82.
- Nascimento, M. M., V. V. Gordan, C. W. Garvan, C. M. Browngardt, R. A. Burne** (2009) Correlations of oral bacterial arginine and urea catabolism with caries experience. Oral Micro. Immunol. 24:89-95
- Abranches, J. L. Zeng, M. Bélanger, P. H. Rodrigues, P. J. Simpson-Haidaris, D. Akin, W. A. Dunn Jr, A. Progulske-Fox, and R. A. Burne** (2009) Invasion of human coronary artery endothelial cells by *Streptococcus mutans* OMZ175. Oral Microbiol. Immunol. 24:141-145. PMC2853226
- Zeng, L., and R. A. Burne** (2009) Transcriptional regulation of the cellobiose operon of *Streptococcus mutans*. J. Bacteriol. 191:2153-2162. PMC2655531
- Burne, R. A., S. J. Ahn, Z. T. Wen, L. Zeng, J. A. Lemos, J. Abranches and M. Nascimento.** (2009) Opportunities for disrupting cariogenic biofilms. Adv. Dent. Res. 21(1):17-20. PMC2853230

- Ahn, S. J., S. J. Ahn and R. A. Burne** (2009) Changes in biochemical and phenotypic properties of *Streptococcus mutans* growing with aeration. *Appl. Environ. Microbiol.* 75(8):2517-27. PMC2675223
- Liu, Y, L. Zeng and R. A. Burne** (2009) AguR is required for induction of the *Streptococcus mutans* agmatine deiminase system by low pH and agmatine. *Appl. Environ. Microbiol.* 75(9):2629-37. PMC2681689
- Liu, Y., and R. A. Burne** (2009) Multiple two-component systems modulate alkali generation in *Streptococcus gordonii* in response to environmental stresses. *J. Bacteriol.* 191:7353-7362. PMC2786566
- Liu, Y., and R. A. Burne** (2009) Multiple two-component systems of *Streptococcus mutans* regulate agmatine deiminase gene expression and stress tolerance. *J. Bacteriol.* 191:7363-7366. PMC2786547
- Toro, E., M. M. Nascimento, E. Suarez-Perez, R. A. Burne, A. Elias-Boneta and E. Morou-Bermudez.** (2010) The effect of sucrose on plaque and saliva urease levels *in vivo*. *Arch. Oral. Biol.* 55:249-254. PMC2853032
- Zeng, L., and R. A. Burne** (2010) Seryl-phosphorylated HPr regulates CcpA-independent carbon catabolite repression in conjunction with PTS permeases in *Streptococcus mutans*. *Mol. Microbiol.* 75:1145-1158. PMC2927710
- Zeng, L., S. Das and R. A. Burne** (2010) Utilization of lactose and galactose by *Streptococcus mutans*: transport, toxicity and carbon catabolite repression. *J. Bacteriol.* 192:2434-2444. PMC2863486
- Wen, Z. T., D. Yates, S-J. Ahn and R. A. Burne** (2010) Biofilm formation and virulence expression by *Streptococcus mutans* are altered when grown in dual-species model. *BMC Microbiology* 10:111. PMC2867949
- Ahn, S. J., K. C. Rice, J. Oleas, K. W. Bayles and R. A. Burne** (2010) The *Streptococcus mutans* Cid and Lrg systems modulate virulence traits in response to multiple environmental signals. *Microbiology* 156:3136-3147. PMC3068699
- Lemos, J. A., J. Abranches, H. Koo, R. E. Marquis and R. A. Burne** (2010) Protocols to study the physiology of oral biofilms. *Methods Mol. Biol.* 666:87-102. PMC3130507
- Seaton, K., S. J. Ahn, A. M. Sagstetter and R. A. Burne** (2010) A transcriptional regulator and ABC transporters link stress tolerance, (p)ppGpp and genetic competence. *J. Bacteriol.* 193(4):862-74. PMC3028664
- Wen, Z. T., A. H. Nguyen, J. P. Bitoun, J. Abranches, H. V. Baker and R. A. Burne** (2011) Transcriptome analysis of LuxS-deficient *Streptococcus mutans* grown in biofilms. *Mol. Oral Microbiol.* 26:2-18. PMC3105442
- Tong, H., L. Zeng and R. A. Burne** (2011) The EIIAB<sup>man</sup> permease regulates carbohydrate catabolite repression in *Streptococcus gordonii*. *Appl. Environ. Microbiol.* 77(6):1957-65. PMC3067331

- Abranches, J., A. R. Martinez, J. H. Miller, P. J. Simpson-Haidaris, R. A. Burne and J. A. Lemos** (2011) The collagen-binding protein Cnm is required for *Streptococcus mutans* intracellular invasion. *Infect. Immun.* 79(6):2277-84. PMC3125845
- Zeng, L., and R. A. Burne** (2011) Genetic analysis of the functions and interactions of components of the LevQRST signal transduction complex of *Streptococcus mutans*. *PLoS One* 22;6(2):e17335. PMC3043104
- Morou-Bermudez, E., A. Elias-Boneta, R. J. Billings, R. A. Burne, V. Garcia-Rivas, V. Brignoni-Nazario and E. Suarez-Perez** (2011) Urease activity as a risk factor for caries development in children during a three-year study period: a survival analysis approach. *Arch. Oral* 56(12):1560-8. PMC3182294
- Liu, Y., and R. A. Burne** (2011) The major autolysin of *Streptococcus gordonii* is subject to complex regulation and modulates stress tolerance, biofilm formation and eDNA release. *J. Bacteriol.* 193(11):2826-37 PMC3133117
- Bitoun, J. P., A. Nguyen, Y. Fan, R. A. Burne and Z. T. Wen** (2011) Transcriptional repressor Rex is involved in regulation of oxidative stress response and biofilm formation by *Streptococcus mutans*. *FEMS Microbiol. Lett.* 320:110-11 (PMC3115380)
- Morou-Bermudez E, A. Elias-Boneta A, R. J. Billings, R. A. Burne, V. Garcia-Rivas, V. Brignoni-Nazario, E. Suarez-Perez** (2011) Urease activity in dental plaque and saliva of children during a three-year study period and its relationship with other caries risk factors. *Arch Oral Biol.* 56(11):1282-9. (PMC3221879)
- Bitoun, J. P., S. Liao, X. Yao, S.-J. Ahn, R. Isoda, A. Nguyen, L. J. Brady, R. Burne, J. Abranches and Z. Wen** (2012) BrpA is involved in regulation of cell envelope stress responses in *Streptococcus mutans*. *Appl. Environ. Microbiol.* 78(8):2914-22. (PMC3318800)
- Morou- Bermudez, E., R. J. Billings, R. A. Burne and A. Elias-Boneta** (2012) Caries risk pyramid: a practical biological approach to caries management by risk assessment. *P. R. Health Sci. J.* 30(4):165-6. PMID22263295
- Kim, J. N., S. J. Ahn, K. Seaton, S. Garrett and R. A. Burne** (2012) Transcriptional organization and physiologic contributions of the *relQ* operon of *Streptococcus mutans*. *J Bacteriol.* 194(8):1968-78. PMC3318469
- Zeng, L., N. C. Martino and R. A. Burne** (2012) Two gene clusters coordinate galactose and lactose catabolism in *Streptococcus gordonii*. *Appl. Environ. Microbiol.* 78(16):5597-605 PMC3406145
- Son, M, S. J. Ahn, Q. Guo, R. A. Burne and S. J. Hagen.** (2012) Microfluidic study of competence regulation in *Streptococcus mutans*: environmental inputs modulate bimodal and unimodal expression of *comX*. *Mol. Microbiol.* 86(2):258-72 (PMC3468698)
- Liu, Y., M. M. Nascimento and R. A. Burne** (2012) Progress toward understanding the

contribution of alkali generation in dental biofilms to inhibition of dental caries. *Int. J. Oral Sci.* 4:135-140 PMC3465751

**Ahn, S. J., M. Qu, E. Roberts, R. A. Burne and K. C. Rice** (2012) Identification of the *Streptococcus mutans* LytST two-component regulon reveals its contribution to oxidative stress tolerance. *BMC Microbiol.* 1;12:187 PMC3507848

**Zeng, L., and R. A. Burne** (2012) Comprehensive mutational analysis of sucrose-metabolizing pathways in *Streptococcus mutans* reveals novel roles for the sucrose PTS permease. *J. Bacteriol.* 195(4):833-43 (PMC3562097)

**Cornejo, O. E., T. Lefébure, P. D. Pavinski Bitar, P. Lang, V. P. Richards, K. Eilertson, T. Do, D. Beighton, L. Zeng, S. J. Ahn, R. A. Burne, A. Siepel, C. D. Bustamante, and M. J. Stanhope** (2013) Evolutionary and population genomics of the cavity causing bacterium *Streptococcus mutans*. *Molec. Biol. & Evol.* 30(4):881-93 (PMC3603310)

**Zeng, L., S. C. Choi, C. G. Danko, A. Siepel, M. J. Stanhope and R. A. Burne** (2013) Gene regulation by CcpA and catabolite repression explored by RNA-Seq in *Streptococcus mutans*. *PlosOne* 8(3):e60465 (PMC3610829)

**S. R. Palmer, J. H. Miller, J. Abranches, L. Zeng, T. Lefebure, V. P. Richards, J. A. Lemos, M. J. Stanhope and R. A. Burne** (2013) Phenotypic heterogeneity of genomically-diverse isolates of *Streptococcus mutans*. *PlosOne* Apr 16;8(4):e61358 (PMC3628994)

**Zeng, L., P. Xue, M. J. Stanhope and R. A. Burne** (2013) A galactose-specific sugar: phosphotransferase permease is prevalent in the non-core genome of *Streptococcus mutans*. *Mol. Oral Microbiol.* 28:202-301. (PMC3661675)

**Nascimento, M. M., Y. Liu, R. Kalra, S. Perez, A. Adewumi, R. E. Primosch and R. A. Burne** (2013) Oral arginine metabolism may decrease the risk for dental caries in children. *J. Dent. Res.* 92:604-608. PMC3684231

**Kim, J. N., M. J. Stanhope and R. A. Burne** (2013) Core-gene-encoded peptide regulating virulence-associated traits in *Streptococcus mutans*. *J. Bacteriol.* 195:2912-20. PMC3697264

**Guo, Q., S.J. Ahn, J. Kaspar, X. Zhou and R. A. Burne** (2013) Growth phase and pH influence peptide signaling for competence development in *Streptococcus mutans*. *J. Bacteriol.* 196:227-236. PMC3911236

**Nascimento, M. M., C. Browngardt, X. Xuaohui, V. Klepac-Ceraj, B. J. Paster and R. A. Burne.** (2014) The effect of arginine on oral biofilm communities. *Mol. Oral Microbiol.* 29:45-54. PMID: 24289808

**Moye, Z., L. Zeng and R. A. Burne** (2014) Modification of gene expression and virulence traits in *Streptococcus mutans* in response to carbohydrate availability. *Appl. Environ. Microbiol.* 80:972-985. PMC3911228

**Richards, V.P., S. R. Palmer, P. D. Pavinski Bitar, X. Qin, G. M. Weinstock, S. K.**

- Highlander, C. D. Town, R. A. Burne, and M. J. Stanhope.** (2014) Phylogenomics and the dynamic genome evolution of the genus *Streptococcus*. *Genome Biol. Evol.* 6:741-753. PMC4007547
- Liao, S., M. Klein, K. Heim, Y. Fan, J. Bitoun, S. J. Ahn, R. A. Burne, H. Koo, L. J. Brady, and Z. T. Wen** (2014). *Streptococcus mutans* eDNA is up-regulated during growth in biofilms, actively released via membrane vesicles, and influenced by components of the protein secretion machinery. *J. Bacteriol.* 196:2355-2366. PMC4054167
- Nascimento, M. M., and R. A. Burne** (In press) Caries prevention by arginine in oral biofilms: Translating science into clinical success. *Curr Oral Health Reports*
- Huang, S. C., R. A. Burne and Y. M. Chen** (2014) The pH-dependent expression of the urease operon in *Streptococcus salivarius* is mediated by CodY. *Appl. Environ. Microbiol.* 80(17):5386-93. PMC4136106
- Moye, Z. D., R. A. Burne and L. Zeng** (2014) Uptake and metabolism of N-acetylglucosamine and glucosamine by *Streptococcus mutans*. *Appl. Environ. Microbiol.* 80(16):5053-67. PMC4135778
- Ahn, S. J., J. Kaspar, J. N. Kim, K. Seaton and R. A. Burne** (2014) Discovery of novel peptides regulating competence development in *Streptococcus mutans*. *J. Bacteriol.* 196(21):3735-45. PMC4248802
- Moye, Z. D., L. Zeng and R. A. Burne** (2014) Fueling the caries process: carbohydrate metabolism and gene regulation by *Streptococcus mutans*. *J. Oral Microbiol.* PMC4157138
- Ahn, S. J., J. Kaspar, J. N. Kim, K. Seaton and R. A. Burne** (2014) Discovery of novel peptides regulating competence development in *Streptococcus mutans*. *J. Bacteriol.* 196: 3735-3745. PMC4248802
- Seaton, K., S. J. Ahn and R. A. Burne** (2014) Regulation of competence and gene expression in *Streptococcus mutans* by the RcrR transcriptional regulator. *Mol. Oral Microbiol.* PMID 25146832 PMC4336644
- Huang, X., R. M. Schulte, R. A. Burne and M. M. Nascimento.** (2015) Characterization of the arginolytic microflora provides insights into pH homeostasis in human oral biofilms. *Caries Res.* 49:165-176. PMC4313619
- Kaspar, J., S. J. Ahn, S. R. Palmer, S. C. Choi, M. J. Stanhope and R. A. Burne.** (2015) A unique ORF within the *comX* gene of *Streptococcus mutans* regulates genetic competence and oxidative stress tolerance. *Mol. Microbiol.* 96(3):463-82. PMC4414889.
- Kim, J. N., S. J. Ahn and R. A. Burne** (2015) Genetics and physiology of acetate metabolism by the Pta-Ack pathway of *Streptococcus mutans*. *Appl. Environ. Microbiol.* PMC4495203.

- Zeng, L., and R. A. Burne** (2015) NagR differentially regulates the expression of the *glmS* and *nagAB* genes required for amino sugar metabolism by *Streptococcus mutans*. J. Bacteriol. 197(22):3533-44 PMC4621086
- Son, M., D. Ghoreishi, S. J. Ahn, R. A. Burne and S. Hagen.** (2015) Sharply-tuned pH response of genetic competence regulation in *Streptococcus mutans*: a microfluidic study of environmental sensitivity of *comX*. Appl. Environ. Microbiol. PMC4510173
- Palmer, S. R., and R. A. Burne** (2015) Post-transcriptional regulation by distal Shine-Dalgarno sequences in the *grpE-dnaK* intergenic region of *Streptococcus mutans*. Mol Microbiol PMC4666293
- Mogen, A. B., F. Chen, S. J. Ahn, R. A. Burne, D. Wang, K. C. Rice.** (2015) Pluronics-formulated farnesol promotes efficient killing and demonstrates novel interactions with *Streptococcus mutans* biofilms. PlosOne 10(7):e0133886 PMC4519314
- Shields, R. C., and R. A. Burne.** (2015) Conserved and divergent functions of RcrRPQ in *Streptococcus gordonii* and *Streptococcus mutans*. FEMS Microbiology Letters. 362(16). pii: fnv119. doi: 10.1093/femsle/fnv119. PMC4809993
- Son, M., R. C. Shields, S. J. Ahn, R. A. Burne and S. J. Hagen** (2015) Bidirectional signaling in the competence regulatory pathway of *Streptococcus mutans*. FEMS Microbiol Lett. Oct;362(19). pii: fnv159. doi: 10.1093/femsle/fnv159 PMC4809993
- Zeng, L., and R. A. Burne** (2016) Sucrose- and fructose-specific effects on the transcriptome of *Streptococcus mutans* probed by RNA-Seq. Appl Environ Microbiol 82(1):146-56 PMC4702655
- Huang, X., S. R. Palmer, S. J. Ahn, V. P. Richards, M. L. Williams, M. M. Nascimento, and R. A. Burne** (2016) Characterization of a highly arginolytic *Streptococcus* species that potently antagonizes *Streptococcus mutans*. Appl. Environ. Microbiol. 82(7):2187-201. PMC4807514
- Zeng, L. T. Farivar, and R. A. Burne** (2016) Amino sugars enhance competitiveness of beneficial commensals with *Streptococcus mutans* through multiple mechanisms. Appl. Environ. Microbiol. PMC4959161
- Moye, Z. D., M. Son, A. Rosa-Alberty, L. Zeng, S.J. Ahn, S. J. Hagen and R. A. Burne** (2016) Effects of carbohydrate source on genetic competence in *Streptococcus mutans* Appl. Environ. Microbiol. 82(15):4821-34. doi: 10.1128/AEM.01205-16 PMC4984281
- Shields, R. C., and R. A. Burne** (2016) Growth of *Streptococcus mutans* in biofilms alters peptide signaling at the sub-population level. Frontiers Microbiol. doi: 10.3389/fmicb.2016.01075 PMC4946182
- Kaspar, J., J. N. Kim, S. J. Ahn and R. A. Burne** (2016) An essential role for (p)ppGpp in the integration of stress tolerance, peptide signaling and competence development in *Streptococcus mutans*. Frontiers Microbiol. doi: 10.3389/fmicb.2016.01162 PMD4963387

**ABSTRACTS (List is not complete):**

**Burne, R. A. and Yasbin, R. E.** 1983. Competence-related intramolecular recombination in *Bacillus subtilis*. Wind River Conference on Genetic Exchange, Estes Park, CO.

**Burne, R. A., B. Rubinfeld, R. E. Yasbin, and W. H. Bowen.** 1985. Cloning and expression of a *Streptococcus mutans* GS-5 sucrose activity in *Bacillus subtilis*. Mid-atlantic Extrachromosomal Elements Meeting, Virginia Beach, VA. Plasmid 13:122.

**Burne, R. A., B. Rubinfeld, W. H. Bowen, and R. E. Yasbin.** 1985. Characterization of *Streptococcus mutans* GS-5 sucrose activities cloned in *Bacillus subtilis* and *E. coli*. J. Dent. Res. 63:#1634.

**Burne, R. A., B. Rubinfeld, W. H. Bowen, and R. E. Yasbin.** 1986. Characteristics of *gtfA* gene expression in *Bacillus subtilis*. In S. Hamada, S. M. Michalek, H. Kiyono, L. Menaker and J. R. McGhee (ed.), Molecular, Microbiology, and Immunobiology of *Streptococcus mutans*. Elsevier Science Publishers, New York.

**Burne, R. A., W. H. Bowen, and R. E. Yasbin.** 1986. Cloning and partial characterization of the exo  $\beta$ -D-fructofuranosidase of *Streptococcus mutans* GS-5. Second Annual ASM Conference on Streptococcal Genetics, Miami, FL.

**Burne, R. A.** 1986. Tight genetic linkage of a dextranase and glucosyltransferase of *Streptococcus mutans* GS-5. J. Dent. Res. 65:#722.

**Burne, R. A., K. Schilling, W. H. Bowen and R. E. Yasbin.** 1987. Purification and characterization of the *Streptococcus mutans* GS-5 b-D-fructosidase. J. Dent. Res. 66:#224.

**Burne, R. A., R. E. Yasbin, and W. H. Bowen.** 1988. Distribution of *fruA*-related sequences among the oral streptococci. J. Dent. Res. 67:#2250.

**Burne, R. A., G. R. Bender, and R. E. Marquis.** 1988. Cloning and expression of an arginine deiminase gene of *Streptococcus sanguis*. Abstr.#D176. American Society for Microbiology Annual Meeting.

**Burne, R. A., D. T. Parsons, and R. E. Marquis.** 1989. Regulated expression of *Streptococcus sanguis* arginine deiminase in *Escherichia coli*. Abstr. #H23. American Society for Microbiology Annual Meeting.

**Burne, R. A., D. T. Parsons, and R. E. Marquis.** 1989. *Streptococcus sanguis* arginine deiminase gene expression in *S. mutans*. J. Dent. Res. 68:1015.

**Caldwell, C., R. A. Burne, D. T. Parsons, and R. E. Marquis.** 1990. Partial characterization of the arginine deiminase system of *Treponema denticola*. J. Dent. Res. 69:325.

**Burne, R. A., D. T. Parsons, and R. E. Marquis.** 1990. Stable integration of the *Streptococcus sanguis* arginine deiminase genes in *S. mutans*. J. Dent. Res. 69:184.

**Burne, R. A., D. T. Parsons, and R. E. Marquis.** 1990. Environmental variables affecting arginine deiminase expression in oral streptococci. American Society for Microbiology International Conference in Streptococcal Genetics, Minneapolis, MN.

**Wexler, D. L., J. E. C. Penders, and R. A. Burne.** 1991. Molecular analysis and genetic regulation of *Streptococcus mutans* fructanase. Cariology for the Nineties, Rochester, NY.

**Penders, J. E. C. and R. A. Burne.** 1991. Sequence homologies of the *S. mutans* fructanase and other sucrases. Cariology for the Nineties, Rochester, NY.

**Burne, R. A.** 1991. DNA sequence analysis of the *fruA* gene of *Streptococcus mutans* GS-5. International Association for Dental Research, Annual Meeting, Acapulco, Mexico.

**Wexler, D. W., J. E. C. Penders, and R. A. Burne.** 1992. Characteristics and cariogenicity of fructanase-defective *S. mutans*. J. Dent. Res. 71:148.

**Penders, J. E. C. and R. A. Burne.** 1992. Genetic and biochemical characterization of urease from an oral isolate. J. Dent. Res. 71:292.

**Olivares, M., J. E. C. Penders, H. Heinzerling, and R. A. Burne.** 1992. Molecular cloning of fibronectin-interactive determinants of *Treponema denticola*. J. Dent. Res. 71:247.

**Heinzerling, H. and R. A. Burne.** 1992. Molecular genetic analysis of *Treponema denticola* components antigenic in humans. J. Dent. Res. 71:247.

**Wexler, D. W., J. E. C. Penders, and R. A. Burne.** 1992. Regulation of expression of genes contributing to virulence of *Streptococcus mutans*. Abstr. H-136. American Society for Microbiology Annual Meeting.

**Burne, R. A., D. L. Wexler, and J. E. C. Penders.** 1993. Cell-associated fructanase activity of *Streptococcus mutans*. Abstr. #404. International Association for Dental Research, Chicago, IL, March 10-14, 1993.

**Phipps, L. S., S. Gatermann, J. E. C. Penders, and R. A. Burne.** Staphylococcal urease genes in *Streptococcus mutans*. Abstr. #414. International Association for Dental Research, Chicago, IL, March 10-14, 1993.

**Wexler, D. L. and R. A. Burne.** 1993. Construction of a fructanase (*fruA*) gene fusion. Abstr. #406. International Association for Dental Research, Chicago, IL, March 10-14, 1993.

**Jayaraman, G., J. E. C. Penders, and R. A. Burne.** 1993. Isolation of the *dnaK* gene of *Streptococcus mutans* GS-5. Abstr. #D124. 93rd General Meeting of the American Society for Microbiology, Atlanta, GA.

**Heinzerling, H., J. E. C. Penders, and R. A. Burne.** 1993. Isolation of a *Treponema denticola* gene with strong homology to a flagellar switch gene (*fliG*). Abstr #D135. 93rd General Meeting of the American Society for Microbiology; Atlanta, GA.

**Burne, R. A., J. E. C. Penders, and D. L. Wexler.** 1993. Genetic regulation of polysaccharide metabolism by *Streptococcus mutans*. Invited symposium presentation. 93rd General Meeting of the American Society for Microbiology; Atlanta, GA, May 16-20, 1993.

**Penders, J. E. C., K. A. Clancy, and R. A. Burne.** 1994. Genetic and transcriptional organization of the *fruA* locus of *Streptococcus mutans* GS-5. Presented at the IVth International ASM Conference on Streptococcal Genetics; Santa Fe, NM, May 15-18, 1994.

**Chen, Y.-Y. M. and R. A. Burne.** 1994. Molecular analysis of the urease of *Streptococcus salivarius*. Presented at the IVth International ASM Conference on Streptococcal Genetics, Santa Fe, NM, May 15-18, 1994.

**Jayaraman, G. C., J. E. C. Penders, and R. A. Burne.** 1994. Analysis of the expression and regulation of the *Streptococcus mutans* GS-5 *dnaK* locus. Presented at the IVth International ASM Conference on Streptococcal Genetics, Santa Fe, NM, May 15-18, 1994.

**Burne, R. A., D. L. Wexler, K. A. Clancy, and J. E. C. Penders.** 1994. Molecular genetics of polysaccharide metabolism. Presented at the IVth International ASM Conference on Streptococcal Genetics, Santa Fe, NM, May 15-18, 1994.

**Wexler, D. L., and R. A. Burne.** 1994. Characterization of expression of the fructanase enzyme of *Streptococcus mutans*. Presented at the IVth International ASM Conference on Streptococcal Genetics, Santa Fe, NM, May 15-18, 1994.

**Heinzerling, H, J. Penders, and R. Burne.** 1994. Molecular-genetic analysis of the *Treponema denticola* flagellar switch/motor complex. Gordon Conference "Biology of Spirochetes", Ventura, CA, January 2-5, 1994.

**Heinzerling, H., M. Olivares, J. E. C. Penders, and R. A. Burne.** 1994. Molecular characterization of the *Treponema denticola* flagellar gene, *fliF*. J. Dent. Res. 73:156.

**Olivares, M., H. Heinzerling, J. E. C. Penders, and R. A. Burne.** 1994. Identification of a *Treponema denticola* gene with potential export/chaperonin function. J. Dent. Res. 73:247.

**Heinzerling, H., M. Olivares, J. E. C. Penders, and R. A. Burne.** 1994. Molecular characterization of the *Treponema denticola* flagellar gene, *fliF*. Abstr.

439. International Association for Dental Research, Seattle, WA, March 10-13, 1994.

**Heinzerling, H., J. E. C. Penders, and R. A. Burne.** 1995. Molecular analysis of flagellar hook, switch and basal body genes of *Treponema denticola*. Bacterial Locomotion and Signal Transduction, Austin, TX, January 12-16, 1995.

**Wexler, D. L., Y.- Y. M. Chen, W. H. Bowen, and R. A. Burne.** 1995. Cariogenicity of fructan-metabolism mutants in a programmed feeding rat model. Abstr# 362. American Association for Dental Research, San Antonio, TX, March 8-12, 1995.

**Burne, R. A., Y.- Y. M. Chen, and J. E. C. Penders.** 1995. Molecular analysis of sucrose metabolism by *Streptococcus mutans* in biofilms. Abstr# 1501. American Association for Dental Research, San Antonio, TX, March 8-12, 1995.

**Heinzerling, H. F., J. E. C. Penders, and R. A. Burne.** 1995. Molecular analysis of flagellar hook-basal body genes of *Treponema denticola*. Abstr# 1900. American Association for Dental Research, San Antonio, TX, March 8-12, 1995.

**Chen, Y.- Y. M., and R. A. Burne.** 1995. Genetic and physiologic analysis of *Streptococcus salivarius* urease. Abstr# 1908. American Association for Dental Research, San Antonio, TX, March 8-12, 1995.

**Jayaraman, G., J. E. C. Penders, and R. A. Burne.** 1995. Characterization of *Streptococcus mutans* DnaK expression in response to environmental stressors. American Society for Microbiology, Annual Meeting, Washington, D.C., May 1995.

**Clancy, K. A., Y.- Y. M. Chen, and R. A. Burne.** 1995. Characterization of purified recombinant urease from *Streptococcus salivarius* 57.I. American Society for Microbiology, Annual Meeting, Washington, D.C., May 1995.

**Rabile, H., G. J. Jayaraman, and R. A. Burne.** 1996. *Streptococcus mutans* DnaK protein levels as a function of exposure to environmental stressors. International Association for Dental Research, Annual Meeting, San Francisco, CA, March 1996.

**Morou-Bermúdez, E. and R. A. Burne.** 1996. Isolation of urease genes of *Actinomyces naeslundii* WVU45. International Association for Dental Research, Annual Meeting, San Francisco, CA, March 1996.

**Chen, Y.- Y. M., T. R. Hall, and R. A. Burne.** 1996. *Streptococcus salivarius* urease expression: Role of EIII<sup>man</sup><sub>L</sub>. International Association for Dental Research, Annual Meeting, San Francisco, CA, March 1996. (Accepted).

**Jayaraman, G. J. and R. A. Burne.** 1996. Expression of the *dnaK* gene of *Streptococcus mutans* in response to environmental stress and acid adaptation. International Association for Dental Research, Annual Meeting, San Francisco, CA, March 1996.

- Clancy, K. A., Y. Y. M. Chen, and R. A. Burne.** 1996. Moderation of glycolytic acidification by recombinant, urease-producing strains of *Streptococcus mutans*. International Association for Dental Research, Annual Meeting, San Francisco, CA, March 1996.
- Morou-Bermúdez, E. and R. A. Burne.** 1997. Genetic characterization of the urease gene locus from *Actinomyces naeslundii*. International Association for Dental Research, Annual Meeting, Orlando, FL, March 1997.
- Albone, E. F. and R. A. Burne.** 1997. Regulation of expression of the *fruA* gene of *Streptococcus mutans* GS-5. Amer. Soc. Microbiol. Ann. Mtg. Miami, FL.
- Chen, Y. M. and R. A. Burne.** 1997. Environmental regulation of urease expression in *Streptococcus salivarius*. Wind River Conference on Prokaryotic Biology, Estes Park, CO.
- Jayaraman, G. C. and R. A. Burne.** 1997. Multi-level control of *dnaK* gene expression in *Streptococcus mutans*. Wind River Conference on Prokaryotic Biology, Estes Park, CO.
- Clancy, A. and R. A. Burne** (1998) Genetically-engineered implantable, urease-producing *Streptococcus mutans* strains. Amer. Assoc. Dent. Res. Ann. Mtg., Minneapolis, MN 3/97
- R. A. Burne.** (1998, Invited Presentation) Control of exopolysaccharide metabolism in oral streptococci. ASM Conference on Streptococcal Genetics, Vichy, France. April 1998
- L. Bergeron and R. A. Burne** (1998) *Actinomyces naeslundii* Fructosyltransferase. International Association for Dental Research Annual Meeting. Nice, France.
- E. Morou-Bermudez and R. A. Burne.** (1998) Analysis of the Urease of *Actinomyces naeslundii*. International Association for Dental Research Annual Meeting. Nice, France
- Weaver, C, Y. M. Chen and R. A. Burne.** (1999) Effects of Ablation of Enzyme I of the Sugar Phosphotransferase (PTS) of *Streptococcus salivarius* on Urease Gene Expression. Int. Assoc. Dent. Res. Ann. Mtg., Vancouver, B.C.
- Chen, Y. M., C. A. Weaver, and R. A. Burne.** (1999) A *cis*-element required for the negative regulation of urease expression in *Streptococcus salivarius*. Ann. Mtg. Am. Soc. Microbiol. Chicago, Il
- R. A. Burne, C. A. Weaver and Y. M. Chen** (1999) Dual role of the urease of *Streptococcus salivarius*. Ann. Mtg. Am. Soc. Microbiol. Chicago, Il
- Lemos, J. A. C., R. A. Burne and A. C. D. Castro.** (1999) Immunologic responses to purified recombinant *Streptococcus pyogenes* GroEL and DnaK. Ann. Mtg. Am. Soc. Microbiol. Chicago, Il.
- Bergeron, L. J. and R. A. Burne.** (1999) *Actinomyces naeslundii* fructosyltransferase. Chicago, Il.

**Chen, Y. M., M. J. Betzenhauser and R. A. Burne** (2000) Molecular Analysis of the *cis*-acting elements of the *Streptococcus salivarius* 57.1 Urease Operon. Ann. Mtg. Am. Soc. Microbiol., Los Angeles, CA.

**Wen, Z. T., and R. A. Burne.** (2000) Analysis of *cis*- and *trans*-acting elements involved in catabolite repression and substrate induction of the expression of the fructan hydrolase of *Streptococcus mutans* UA159. Ann. Mtg. Am. Soc. Microbiol., Los Angeles, CA.

**Morou-Bermudez, E., and R. A. Burne.** (2000) Regulation of urease expression by nitrogen availability in *Actinomyces naeslundii*. Intl. Assoc. Dent. Res. Ann. Mtg., Washington, D.C. Abstr. #3051.

**R. A. Burne, Y. M. Chen and Y. H. Li.** (2000) Regulation of urease expression and exopolysaccharide gene expression in response to pH and to carbohydrate source and availability in single species biofilms of oral streptococci. Gordon Research Conference on "Microbial Stress Responses". Newport, RI.

**Chen, Y. M. and R. A. Burne.** (2000) A Low-pH Inducible Urease Gene Expression in *Streptococcus salivarius*. Gordon Research Conference on "Microbial Stress Responses". Newport, RI.

**Lemos, J. A. C. and R. A. Burne.** (2000) Genetic and physiological analysis of class I heat shock genes in *Streptococcus mutans*. Gordon Research Conference on "Microbial Stress Responses". Newport, RI.

**J. A. C. Lemos, Y. M. Chen and R. A. Burne.** (2001) Genetic analysis of the *Streptococcus mutans groE* operon and physiological characterization of an HrcA mutant strain grown in continuous culture. Amer. Soc. Microbiol. Ann. Mtg., Orlando, FL.

**Betzenhauser, M. J., J. Zubek, Y. M. Chen and R. A. Burne.** (2001) Galactose and Lactose Metabolism by *Streptococcus salivarius*. Amer. Soc. Microbiol. Ann. Mtg., Orlando, FL.

**Wen, Z. T. C. M. Browngardt and R. A. Burne.** (2001) Characterization of fructose permease mutants of *Streptococcus mutans* UA159. Amer. Soc. Microbiol. Ann. Mtg., Orlando, FL.

**Shu, M., C. M. Browngardt, Y. M. Chen and R. A. Burne.** (2002) Urea Induced pH Rise by Consortium Biofilms in a Chemostat Culture Chamber. IADR Annual Mtg., San Diego, CA.

**Browngardt, C. M., Z. T. Wen and R. A. Burne.** (2002) The Role of carbohydrate availability, pH, and carbon catabolite control protein A (CcpA) in the regulation of exopolysaccharide production by *Streptococcus mutans*. IADR Annual Mtg., San Diego, CA.

**Dong, Y., Y. M. Chen and R. A. Burne.** (2002) Molecular Analysis of the *arc* operon of *Streptococcus gordonii*. ASM Conference on Streptococcal Genetics. Asheville, N.C.

- J. Abranches\*, Y. M. Chen and R. A. Burne.** (2002) Characterization of a *Streptococcus mutans* strain deficient in EIIAB<sup>Man</sup> of the sugar phosphotransferase system. ASM Conference on Streptococcal Genetics. Asheville, N.C.
- Lemos, J. A. C. and R. A. Burne.** (2001) Regulation and role in acid tolerance of the *clp* regulon of *Streptococcus mutans*. ASM Conference on Streptococcal Genetics. Asheville, N.C.
- Wen, Z., and R. A. Burne.** (2002) Characterization of *luxS* of *Streptococcus mutans*. ASM Conference on Streptococcal Genetics. Asheville, N.C.
- Griswold, A., Y. M. Chen and R. A. Burne.** (2002) Isolation and promoter analysis of the *arc* operon of *Streptococcus rattus* strain FA-1. ASM Annual Mtg., Washington, D.C.
- Shu, M., C. M. Browngardt, Y. M. Chen and R. A. Burne.** (2003) Effect of Urease Activity on Consortium Biofilms in a Constant Depth Film Fermentor. ASM Annual Mtg., Washington, D.C.
- Lemos, J. A. C., T. A. Brown Jr. and R. A. Burne.** (2003) RelA is involved in biofilm formation and acid tolerance in *Streptococcus mutans*. IADR Annual Mtg., Göteborg, Sweden
- Abranches, J., Y. M. Chen and R. A. Burne.** (2003) The PTS enzyme EIIAB<sup>Man</sup> is involved in the regulation of *gtfBC* and *fff* in *Streptococcus mutans*. IADR Annual Mtg., Göteborg, Sweden
- Dong, Y., Y. M. Chen and R. A. Burne.** (2003) Molecular mechanism for catabolite repression of the arginine deiminase operon of *Streptococcus gordonii* DL-1. IADR Annual Mtg., Göteborg, Sweden
- Wen, Z. T., and R. A. Burne.** (2003) LuxS-Mediated Signaling Regulates Acid and Oxidative Stress Tolerance and Biofilm Formation in *Streptococcus mutans*. IADR Annual Mtg., Göteborg, Sweden
- Antonelli, P. J., X. Lee, and R. A. Burne** (2004) Bacterial biofilms may contribute to cochlear implant infection. Amer. Otologic Soc. Ann. Mtg. Phoenix, AZ
- Abranches, J. A., Y. M. Chen and R. A. Burne** (2004) Galactose metabolism by *Streptococcus mutans*. ASM Annual Mtg., New Orleans, LA.
- Lemos, J. A. C., and R. A. Burne (2004)** Effects of *dnaK* down-regulation on biofilm formation and acid tolerance. ASM Annual Mtg., New Orleans, LA.
- Griswold, A. R., M. Jameson-Lee, Y. M. Chen and R. A. Burne** (2004) Identification of AguR, a Positive Regulator of the Arginine Deiminase System in *Streptococcus mutans* UA159 ASM Annual Mtg., New Orleans, LA.
- Brown, T. A. Jr., J. A. C. Lemos, and R. A. Burne** (2004) A role for toxin:antitoxin pairs in *Streptococcus mutans*. ASM Annual Mtg., New Orleans, LA.

- Nascimento, M. M., J. A. C. Lemos, J. Abranches, R. B. Goncalves and R. A. Burne** (2004) Acid tolerance response of *Streptococcus sobrinus* 6715. ASM Annual Mtg., New Orleans, LA.
- Wen, Z. T., T. A. Brown Jr., and R. A. Burne.** (2004) LuxS deficiency causes defects in cell-cell interaction and biofilm accumulation by *Streptococcus mutans*. ASM Conference on Cell-Cell Communication in Bacteria, Calagary, Canada
- Koo, H., J. Seils, R. G. Quivey, W. H. Bowen, R. Burne, J. Abranches, P. L. Rosalen and J. A. Cury** (2005) Influence of apigenin on *gtf* gene expression by *Streptococcus mutans*. AADR
- Yates, D. M., Z. T. Wen and R. A. Burne** (2005) Microbial cell-cell interactions and virulence regulation by *Streptococcus mutans*. AADR, Baltimore, MD.
- Lemos, J. A., Luzardo, Y. & Burne, R.A.** (2005) Physiologic effects of forced down-regulation of *dnaK* and *groEL* of *Streptococcus mutans*. Amer. Soc. Microbiol. Annu. Mtg. Atlanta, GA.
- Griswold, A. and R. A. Burne** (Submitted) Regulation of the *Streptococcus mutans* UA159 agmatine deiminase system by environmental stress. Amer. Soc. Microbiol. Annu. Mtg. Atlanta, GA.
- Sang-Joon Ahn, and Robert A. Burne.** (2005) Different behaviors of *ciaR* and *ciaH* mutants of *Streptococcus mutans* UA159 involved in genetic competence, biofilm formation, acid tolerance, and expression of *htrA*. Amer. Soc. Microbiol. Annu. Mtg. Atlanta, GA.
- Abranches, J., M. M. Candella and R. A. Burne.** (2005) EII<sup>Glc</sup> and EIIAB<sup>Man</sup> of the phosphoenolpyruvate:sugar phosphotransferase system are involved in stress tolerance in *Streptococcus mutans* UA159. Amer. Soc. Microbiol. Annu. Mtg. Atlanta, GA.
- Browngardt, C. M., and R. A. Burne** (2005) Characterization of the acid tolerance response of *Lactobacillus rhamnosus*. Amer. Soc. Microbiol. Annu. Mtg. Atlanta, GA.
- Z. T. Wen and Robert A. Burne.** (2005) BrpA-deficiency causes defects in cell-cell interaction and biofilm accumulation in *Streptococcus mutans*. Amer. Soc. Microbiol. Annu. Mtg. Atlanta, GA.
- Lemos, J. A., M. M. Nascimento, V. K. Lin, and R. A. Burne** (2006) Identification of novel enzymes involved in (p)ppGpp production by *Streptococcus mutans*. Amer. Soc. Microbiol. Annu. Mtg. Orlando, FL.
- Abranches, J., J. A. Lemos and R. A. Burne** (2006) Involvement of ManO in the mannose PTS of *Streptococcus mutans* UA159. Amer. Soc. Microbiol. Annu. Mtg., Orlando, FL.
- Wen, Z. T., J. Abranches, H. V. Baker and R. A. Burne** (2006) Characterization of LuxS-deficient *Streptococcus mutans* by proteomic and microarray analysis. Amer. Soc. Microbiol. Annu. Mtg., Orlando, FL.

**Wang, Y. , L. Zeng, and R. A. Burne** (2007) Topology mapping of LevQ, LevT and LevS of *Streptococcus mutans*. Amer. Assoc. Dent. Res. Annu. Mtg., New Orleans, LA

**Nascimento, M., R. A. Burne, L. Baccaglini, and V. V. Gordan** (2007) Preliminary clinical assessment of alkali production and its relationship to caries status. Amer. Assoc. Dent. Res. Annu. Mtg., New Orleans, LA

**Ahn, S. J., and R. A. Burne** (2007) Effects of oxygen on AtlA biogenesis and biofilm formation by *Streptococcus mutans*. Amer. Soc. Microbiol. Annu. Mtg., Toronto, Canada

**Luzardo, Y., J. A. Lemos, and R. A. Burne** (2007) The *grpE-dnaK* intergenic region is required for optimal expression of *dnaK*. Amer. Soc. Microbiol. Annu. Mtg., Toronto, Canada

**Kusano, C., J. Abranches, D. B. James and R. A. Burne** (2007) A tagatose-1,6-bisphosphate aldolase-like gene product (*lacD.1*) influences biofilm formation and sugar uptake in *Streptococcus mutans*. Amer. Soc. Microbiol. Annu. Mtg., Toronto, Canada

**Lin, V. K., J. A. Lemos and R. A. Burne** (2007) Characterization of two novel enzymes involved in (p)ppGpp production in *Streptococcus mutans*. Amer. Soc. Microbiol. Annu. Mtg., Toronto, Canada

**Nascimento, M. M., J. A. Lemos, J. A. Abranches, V. K. Lin and R. A. Burne** (2007) The stringent response of *Streptococcus mutans*. Amer. Soc. Microbiol. Annu. Mtg., Toronto, Canada

**Bonesteel, C. Z. Wen and R. A. Burne** (2008) Evaluation of FruA/FruB in Fructan Catabolism by *Streptococcus mutans*. AADR Annu. Mtg. Dallas, Tx.

**Wen, Z. T., and R. A. Burne** (2008) Characterization of BrpA in regulation of *Streptococcus mutans* virulence attributes. Annu. Mtg. Amer. Soc. Microbiol., Boston, MA.

**Seaton, K. C., S. J. Ahn and R. A. Burne** (2008) Identification of a gene cluster regulating acid tolerance and a (p)ppGpp synthase in *Streptococcus mutans*. Annu. Mtg. Amer. Soc. Microbiol., Boston, MA.

**Morou-Bermudez, E., M. M. Nascimento, E. Suarez-Perez and R. A. Burne** (2008) Alkali-producing and acid-producing bacteria associated with caries. Annu. Mtg. Intl. Assoc. Dent. Res., Toronto, Canada

**Ahn, S. J., S. J. Ahn, Z. T. Wen, L. J. Brady and R. A. Burne** (2008) Characteristics of *in vitro* biofilm formation by *Streptococcus mutans* in the presence of salivary agglutinin. Annu. Mtg. Intl. Assoc. Dent. Res., Toronto, Canada

**Toro, E., M. Nascimento, E. Suarez-Perez, R.A. Burne, A. Elias-Boneta, E. Morou-Bermudez** (2008) Factors that influence the response of urease to sugar *in vivo*. Annu. Mtg. Intl. Assoc. Dent. Res., Toronto, Canada

- Liu, Y., Y. Dong, Y. M. Chen and R. A. Burne** (2008) Arginine deiminase gene regulation in *Streptococcus gordonii*. Annu. Mtg. Intl. Assoc. Dent. Res., Toronto, Canada
- Abranches, J., L. Zeng, M. Bélanger, P. H. Rodrigues, D. Akin, W. A. Dunn Jr, A. Progulsk-Fox and R. A. Burne** (2008) Invasion of human coronary artery endothelial cells by *Streptococcus mutans*. Annu. Mtg. Intl. Assoc. Dent. Res., Toronto, Canada
- Schulte, R. M., R. A. Burne, V. V. Gordan and M. M. Nascimento** (2009) Alkali generation capacity of oral bacteria. Intl. Assoc. Dent. Res., Miami, FL
- Keskar, M., L. Zeng and R. A. Burne** (2009) Transcriptional regulation of *fruA* and *levD* by the phosphotransferase system. Intl. Assoc. Dent. Res., Miami, FL
- Brignoni-Nazario, V, E. Suarez-Perez R. J. Billings, R. A. Burne, A. Elias-Boneta, E. Morou-Bermudez** (2009) Factors Associated with Urease Activity in Young Children. Intl. Assoc. Dent. Res., Miami, FL
- Morou-Bermudez, E. , E. Suarez-Perez R. J. Billings, R. A. Burne, A. Elias-Boneta,** (2009) Association of plaque urease with smooth enamel lesions in children. Intl. Assoc. Dent. Res., Miami, FL
- Wen, Z. T., and R. A. Burne** (2009) Characterization of SMU.1052/1055 gene cluster of *Streptococcus mutans*. Intl. Assoc. Dent. Res., Miami, FL
- Keskar, M., L. Zeng and R. A. Burne** (2009) Carbohydrate source-dependent regulation of *levD* expression. Intl. Assoc. Dent. Res., Miami, FL
- Korithoski, B., and R. A. Burne** (2010) Analysis of the *Streptococcus mutans grpE-dnaK* intergenic region. ASM Annual Mtg., San Diego
- Seaton, K., S. J. Ahn and R. A. Burne** (2010) A gene cluster linking (p)ppGpp, competence and stress tolerance in *Streptococcus mutans*. ASM Annual Mtg., San Diego
- Martino, N., L. Zeng and R. A. Burne** (2010) Analysis of lactose/galactose PTS permease genes in *Streptococcus gordonii* ASM Annual Mtg., San Diego, CA
- Garrett, S., S. J. Ahn and R. A. Burne** (2010) Analysis of the *relQ* operon of *Streptococcus mutans*. ASM Annual Mtg., San Diego, CA
- Sagstetter, A., K. Seaton, S. J. Ahn and R. A. Burne** (2011) A MarR transcriptional regulator affects competence development in *Streptococcus mutans*. IADR Annual Mtg. San Diego, CA
- Watts, M., S.-J. Ahn and R. A. Burne** 2012 Integration of oxygen- and carbohydrate-dependent gene expression in *Streptococcus mutans*. AADR Annual Mtg., Tampa, FL
- Liu, Y., M. Nascimento, R. Schulte, R. Kalra and R. A. Burne** (2012) Characterization of the arginolytic microflora of human oral biofilms. AADR Annual Mtg., Tampa, FL

- Palmer, S. R., L. Zeng, T. Lefebure, M. J. Stanhope and R. A. Burne (2012)** Phenotypic characterization of genetically-diverse clinical isolates of *Streptococcus mutans*. AADR Annual Mtg., Tampa, FL
- Morou-Bermudez, E., A. Elias-Boneta, R. J. Billings, R. A. Burne, V. Garcia Rivas, and E. Suarez-Perez (2012)** Ureolytic bacteria in dental plaque and caries progression in children. AADR Annual Mtg., Tampa, FL
- Nascimento, M. M., Y. Liu, R. Kalra, S. Perez, A. Adewumi, X. Xu and R. A. Burne (2012)** Arginine metabolism may confer caries resistance in children. AADR Annual Mtg., Tampa, FL
- Zeng, L., and R. A. Burne (2012)** A systematic characterization of multiple sucrose-metabolizing mechanisms in *Streptococcus mutans*. Gram-positive Pathogens, Omaha Nebraska.
- Moye, Z. D., L. Zeng and R. A. Burne (2012)** Carbohydrate availability modified gene expression and virulence traits in *Streptococcus mutans*. Gram-positive Pathogens, Omaha Nebraska.
- Watts, M. O., S. J. Ahn and R. A. Burne (2012)** Carbohydrate source and oxygen control the expression of the pyruvate dehydrogenase complex operon in *Streptococcus mutans*. Gram-positive Pathogens, Omaha Nebraska.
- Guo, Q., S. J. Ahn and R. A. Burne (2013)** Growth domain and environment modulate *comX* induction by XIP and CSP in *Streptococcus mutans*. Amer. Soc. Microbio. Annu. Mtg., Denver, CO.
- Abdel-Rahim, N., J. N. Kim, M. J. Stanhope and R. A. Burne. (2013)** Functional analysis of unique core genes of *Streptococcus mutans*. Intl. Assoc. Dent. Res., Seattle, WA.
- Huang, X., M. Nascimento, L. Zeng and R. A. Burne (2014)** Antagonistic effects of oral arginolytic bacteria on *Streptococcus mutans*. Am. Assoc. Dent. Res. Annu. Mtg. Charlotte, N.C.
- Palmer, S. R., and R. A. Burne (2014)** The 5' untranslated region regulates *dnaK* expression in *Streptococcus mutans*. Am. Assoc. Dent. Res. Annu. Mtg. Charlotte, N.C.
- Kaspar, J., S.J. Ahn and R. A. Burne. 2014.** The *rcrRPQ* operon of *Streptococcus mutans* regulates competence via and intragenic ORF. Amer. Soc. Microbiol. Annu. Mtg. Boston, MA
- Moye, Z. D., R. A. Burne and L. Zeng. 2014.** Amino sugar metabolism by *Streptococcus mutans*. Amer. Soc. Microbiol. Annu. Mtg. Boston, MA
- Son, M., D. Ghoreishi, S. J. Ahn, R. A. Burne and S. J. Hagen. 2015** Sharply tuned pH response of a stochastic circuit: Environmental regulation of genetic competence in *Streptococcus mutans*. Stochastic Physics in Biology Gordon Conference
- Alvarez, A., X. Huang, S. Perry, L. Mugayar, X. Xu, R. A. Burne and Marcelle M. Nascimento. 2015.** Arginine metabolism and dental caries in children: a 12-months

study. IADR Annu. Mtg., Boston MA

**Huang, X., S. R. Palmer, M. M. Nascimento and R. A. Burne.** 2015. Characterization of an arginolytic bacterium capable of inhibiting *Streptococcus mutans*. IADR Annu. Mtg., Boston MA

**Moye, Z. D, A. E. Rosa-Alberty, L. Zeng, S. J. Ahn and R. A. Burne.** 2015. Carbohydrate source impacts development of genetic competence by *Streptococcus mutans*. Amer. Soc. Microbiol., New Orleans, LA.

**Kaspar, J., S. J. Ahn and R. A. Burne.** 2015. A critical link between (p)ppGpp and competence development in *Streptococcus mutans*. Amer. Soc. Microbiol., New Orleans, LA.

**Shields, R. A., and R. A. Burne.** 2015 RcrR Influences stress tolerance but not genetic competence in *Streptococcus gordonii*. Amer. Soc. Microbiol., New Orleans, LA.

**Palmer, S. R., and R. A. Burne** (2015) The  $\Delta yidC2$  mutant of *Streptococcus mutans* is tired and hungry. AADR Annu. Mtg. Los Angeles, CA

**Richards, V. P., A. J. Alvarez, A. Luce, S. Perry, H. Hong, L. M. Shaddox, R. A. Burne and M. M. Nascimento** (2016) The microbiome of site-specific dental plaque of children with different caries status. AADR Annu. Mtg. Los Angeles, CA

**Kaspar, J. A. Reyes and R. A. Burne** (2016) Co-cultivation models reveal XIP to be an intercellular communication molecule for *Streptococcus mutans*. ASM Annual Meeting, Boston, MA.

**Palmer, S. R., and R. A. Burne** (2016) The  $\Delta yidC2$  mutant of *Streptococcus mutans* is tired and hungry. AADR Annu. Mtg. Los Angeles, CA.

**Nascimento and others** (2016) Arginine and fluoride affect caries-related metabolic activities of oral biofilms. IADR, Seoul, Korea.

**Kim, J. N., and R. A. Burne** (2016) Regulation of Acetate Metabolism by CodY and CcpA in *Streptococcus mutans*. IADR, Seoul, Korea.

**Zeng, L., B. Chakraborty, T. Farivar and R. A. Burne** (2016) CcpA and FruR coordinate regulation of the  $EII^{Man}$  and *fruRKL* operons in *Streptococcus mutans*. ASM Conference on Streptococcal Genetics, Washington, D.C.

**Chakraborty, B., and R. A. Burne.** (2016) Impact of arginine on the growth, virulence expression and stress tolerance of *Streptococcus mutans*. ASM Conference on Streptococcal Genetics, Washington, D.C.

**Kaspar, J., R. C. Shields, S. J. Ahn and R. A. Burne** (2016) New insights into the novel genetic competence regulator XrpA of *Streptococcus mutans*. ASM Conference on Streptococcal Genetics, Washington, D.C.

**Shields, R. C., and R. A. Burne** (2016) Growth of *Streptococcus mutans* in biofilms alters peptide signaling at the sub-population level. ASM Conference on Streptococcal Genetics, Washington, D.C.

**Shields, R. C., S. J. Ahn and R. A. Burne** (2016) The Essential Role of the Gene Products and Peptide Effectors of the *rcrRPQ* Operon in Tolerance of Cell Envelope Stress. ASM Conference on Streptococcal Genetics, Washington, D.C.

**Williams, M. L., L. Zeng, S. R. Palmer and R. A. Burne** (2016) Disruption of *Streptococcus mutans* Biofilm by *Streptococcus* A12. ASM Conference on Streptococcal Genetics, Washington, D.C.

**Burne, R. A., S. J. Ahn, C. Browngardt, B. Chakraborty, T. Farivar, S. J. Hagen, J. Kaspar, J. N. Kim, M. M. Nascimento, S. R. Palmer, V. P. Richards, R. C. Shields, M. Son, M. L. Williams, and L. Zeng** (2016) Adaptations of oral streptococci to changing environments: Stress or motivation? Invited Keynote Presentation. ASM Conference on Streptococcal Genetics, Washington, D.C.

#### **BOOKS/CHAPTERS/MONOGRAPHS:**

**Burne, R. A.** 1992. Oral ecological disasters: The role of short-term extracellular storage polysaccharides. In: W. H. Bowen and L. A. Tabak (Eds.), *Cariology for the Nineties*. University of Rochester Press, Rochester, NY., pp. 351-364.

**Marquis, R. E., R. A. Burne, D. T. Parsons, and A. E. Casiano-Cólon.** 1992. Arginine deiminase and alkali generation in plaque. In: W. H. Bowen and L. A. Tabak (Eds.), *Cariology for the Nineties*. University of Rochester Press, Rochester, NY., pp. 309-317.

**Ellen, R. P. and R. A. Burne.** 1996. Conceptual advances in oral microbial adhesion. M. Fletcher and D. Savage (Eds.), In: *The molecular and ecologic diversity of bacterial adhesion*. John Wiley and Sons, Inc., New York, NY., pp. 201-248.

**Burne, R. A.** (1998) Oral streptococci...products of their environment. *J. Dent. Res.* 77:445-452

**Burne, R. A. and Y. M. Chen.** 2000. Analysis of gene expression in biofilm bacteria, *In Handbook of Bacterial Adhesion* (Y. H. An and R. J. Friedman, eds.) pp. 203-211

**Burne, R. A., and R. E. Marquis** (2000) Alkali production by oral bacteria and protection from dental caries. *FEMS Microbiol. Lett.* 193:1-6.

**Burne, R. A., and Y. M. Chen** (2000) The role of urease in bacterial infections. *Microbes Infect* 2:533-542.

**Burne, R. A., R. G. Quivey Jr. and R. E. Marquis.** 1999. Physiologic homeostasis and stress responses in oral biofilms. *Meth. Enzymol.* 310:441-460.

**Burne, R. A., and R. E. Marquis.** (2001) Biofilm acid/base physiology and gene expression in oral bacteria. *Meth. Enzymol. Methods Enzymol.* 2001;337:403-415

**Oral Microbiology and Immunology** (2006) "General Microbiology" Lamont, R. J., R. A. Burne, M. Lantz and D. LeBlanc (eds). American Society for Microbiology, Washington D. C.

**Editor: Oral Microbiology and Immunology** (2006) Lamont, R. J., R. A. Burne, M. Lantz and D. LeBlanc (eds). American Society for Microbiology, Washington D. C.

**Burne, R. A., J. Abranches, S.- J. Ahn, J. A. Lemos, Z. T. Wen and R. A. Burne** (2011) Functional genomics of *Streptococcus mutans*. *In* Oral microbial communities: Genomic Inquiry and Interspecies communication. P. E. Kolenbrander (Ed.) ASM Press, Washington, D.C.

### **EDITORIAL BOARDS:**

Editorial Board - Infection and Immunity, American Society for Microbiology, January, 2003 to December, 2008

Editorial Board - FEMS Microbiology Letters, Federation of European Microbiological Sciences, 1999-2016.

Editorial Board - Interdisciplinary Perspectives in Infectious Diseases, Hindawi Publishing, 2008-2010.

Editorial Board – Journal of Bacteriology, 2010-2012.

Editorial Board – PLoSOne, 2012-2016.

Editorial Advisory Board member, Molecular Microbiology, 2016-2017.

### *Ad hoc reviewer-*

Microbiology and Molecular Biology Reviews

Molecular Microbiology

Infection and Immunity

Journal of Bacteriology

Applied and Environmental Microbiology

Environmental Microbiology

Journal of Dental Research

Journal of Applied Microbiology

Archives of Oral Biology

Oral Microbiology and Immunology

PLOS Pathogens

### **GRANT STUDY SECTIONS:**

*Ad hoc* Member - Genome Study Section (1998-2000).

*Ad hoc* Member - Oral Biology and Medicine Study Section I, 1998-2002.

Member - Oral Biology and Medicine Study Section I, 2002-October, 2003.

*Ad hoc* Member – NIDCR Special Study Section on Training Grants

*Ad hoc* Member – NIAID P-RCE Grants on Biodefense and Emerging Infectious Diseases

Various *ad hoc* Study Sections 1990-present

**MENTORING ACTIVITY:**

*Graduate Student Advisor to*

Donald L. Wexler, DDS (Cariology Trainee) (Ph.D. Candidate, Microbiology)  
1990-1995 (Private Orthodontic Practice)

Gayatri C. Jayaraman (Ph.D. Candidate, Microbiology) 1993-1997  
(Head, Surveillance and Epidemiology Division, Public Health Agency of Canada)

Hollis F. Heinzerling, DDS (Dentist Scientist, Ph.D. Candidate, Microbiology)  
1990-1998 (Private practice)

Evangelia Morou-Bermúdez, DDS (Ph.D. Candidate, Microbiology) 1994-1999  
(Professor, Department of Surgical Sciences, Director of Oral  
Biology, University of Puerto Rico, School of Dentistry)

K. Anne Clancy (Ph.D. Program in Biology and Medicine) 1994-1998  
(Assistant Director, Human Subjects, Childrens' Hospital and University of Washington)

Lori Bergeron (Ph.D. Candidate, Microbiology) 1996-2000  
(Associate Professor of Biology, New England College)

Cheryl Weaver (M.S., Microbiology) 1996-1998 (Carl Zeiss company)

Yiqian Dong, DDS (Ph.D. IDP, Microbiology) 2001-2004 (Private Practice)

Ann Griswold (Ph.D..IDP, Microbiology) 2002-2006 (Media & Communications Manager, PNAS)

Kinda Seaton (Ph.D. candidate, IDP), 2007 – 2013 (Research Scientists, Evolutate Inc.)

Mercedes Rivera (M.S., IDP), 2007 – 2010 (PhD student, U. Florida)

Matthew Watts (Ph.D. candidate, IDP), 2007 – 2014 (Research Scientist, Novozyme)

Stephen Garrett (M.S. candidate, Biomedical Sciences Program) 2008 – 2010 (Dentist, Private  
Practice)

Nicole Martino (M.S. candidate, Biomedical Sciences Program) 2009 – 2011 (Prosthodontic Resident)

Zachary Moye (Ph.D. candidate, IDP) 2011-present

Justin Kaspar (Ph.D. candidate, IDP) 2012-present

*Member, Ph.D. Committee*

Charles Caldwell, DDS (Microbiology) 1990-1997

Wendy Kuhnert (Ph.D. Microbiology) 1996-1999

Tracey Schipp Householder (Ph.D. Microbiology) 1997-2000

Jan Spence (Ph.D. Microbiology) 1996-2001

Jon Raymond (Ph.D. Microbiology) 2000-2001

Jeffery Rogers (Ph.D. SUNY at Buffalo School of Dental Medicine) 2000

Trevor Seifert (Ph.D. IDP) 2002-2005

Roslyn Frank (Ph.D., IDP) 2004-2009

Sara Palmer (Ph.D., IDP) 2006-2011

Wendy Carcamo (Ph.D., IDP) 2009-2014

Matthew Williams (Ph.D. IDP) 2010-2015

Minjun Son (Ph.D. UF-Department of Physics) 2013-2014

Simon ?? (Ph.D. UF- Department of Physics) 2014-

Christina Colomer-Winter (Ph.D., IDP) 2015 – present

Danielle Vermillyea (Ph.D., IDP) 2015-present

*Chair (External), Thesis Defenses*

Wesley Belli (Ph.D. Microbiology) 1992

Lynn Rust (Ph.D. Microbiology) 1994

Ronald Pigeon (Ph.D. Microbiology) 1995

*Member, Master's Degree Committee*

Colm Sugrue, DDS (Dental Science) 1990-1992  
 Athanasios Vasilas, DDS (Dental Science) 1989-1991  
 William Laskaris, DDS (Dental Science) 1991-1992  
 Jim Cook (Microbiology) 1992-1993  
 Ming Hsu (Microbiology) 1992-1993  
 Evmorfia Sirrakou, DDS (Dental Science) 1992-1994  
 Ahmad Soolari, DDS (Dental Science) 1993-1996  
 Antonio Moretti, DDS (Dental Science) 1993-1998  
 Tim Curran (Microbiology) 1996-1998  
 Glen Rutherford (Microbiology) 1996-1999  
 Thomas Hussey (Microbiology) 2010-2011

*Rotations*

All Ph.D. students listed above, *plus*  
 Lonette Phipps (Dental Scientist)(Microbiology) 1991-1992  
 Sima Kumar (Ph.D. candidate, Microbiology) 1998  
 Jon Raymond (Ph.D. candidate, Microbiology), 1998  
 Julia Nary (Ph.D. candidate, Microbiology), 2000  
 Liqiong Gui (Ph.D. candidate, Biomedical Engineering), 2000  
 Heather Bluett (Ph.D. candidate, Microbiology), 2001  
 Roslyn Frank (Ph.D. candidate, IDP), Fall, 2003  
 Qian Liu (Ph.D. candidate, IDP), Spring, 2004  
 Max Salganik (Ph.D. candidate, IDP), Summer, 2005  
 Sara Palmer (Ph.D. candidate, IDP), Spring, 2006  
 Sindhu Arivazhagan (Ph.D. candidate, IDP), Spring, 2009  
 Derek Jacobs (Ph.D. candidate, IDP), Spring, 2009  
 Irina Velsko (Ph.D. candidate, IDP), Fall, 2010  
 Adit Dhummakupt (Ph.D. candidate, IDP), Fall, 2011  
 Kyulim Lee (DMD-PhD candidate, IDP/UFCD) Fall, 2016  
 J. Forrest Shirley (PhD candidate, IDP) Fall, 2016  
 Alex Kesterson (PhD candidate, IDP) Fall, 2016

*Postdoctoral Fellows (Present Position)*

Margaret Chen, Ph.D., 1993-1995 (Associate Professor, Medical School, Taiwan)  
 Earl Albone, Ph.D., 1995-1997 (Research Scientist, Smith Kline Beecham)  
 Heather Allison, Ph.D., 1997-1998 (Senior Lecturer, University of Liverpool)  
 Zezhang Wen, Ph. D., 4/98-9/2001 (Associate Professor/Tenure, LSU Dental School)  
 Yunghua Li, Ph.D., 10/98-10/99 (Associate Professor, U. Dalhousie)  
 Samir Bhagwhat, Ph.D., 9/99-2001 (Scientist, U. Rochester)  
 José Lemos, Ph.D., 2/2000- 10/2002 (Associate Professor, U. Rochester)  
 Shu Man, DDS, Ph.D., 6/2000 – 5/2003 (Clinical Assistant Professor, Nova SE)  
 Jacqueline Abranches, Ph.D., 9/2001-9/2004 (Assistant Professor, U. Rochester)  
 Sang-Joon Ahn, Ph.D., 8/2003 – 8/2006 (Research Assistant Professor, U. Florida)  
 Lin Zeng, Ph.D. 8/2004-2007 (Research Assistant Professor, U. Florida)  
 Marcelle Nascimento, DDS, Ph.D., 4/05 – 11/07 (Assistant Professor, Operative Dentistry, U. Florida)  
 Yaling Liu, DDS, Ph.D., 8/06 – 6/12 (Resident, U. Rochester)  
 Bryan Korithiski, PhD, 4/08 – 5/11 (Post-doc, U. Florida)

Peng Xue, PhD, 12/10 – 3/11 (Post-doc, U. Pitt) (PhD 2009, University of Manchester).  
 Jeong Nam Kim, PhD, 12/10 – 7/16 (Faculty, Pusan University, S. Korea)  
 Sara Palmer, PhD, 6/11-12/15 (K99/R00 recipient, Asst. Prof. Ohio State U.)  
 Xuelian Grace Huang, DDS, PhD 12/12-6/15 (AEGD Resident, U. Rochester)  
 Robert Shields, PhD 8/14 – present  
 Brinta Chakraborty, PhD 5/15-present  
 Matthew Williams, PhD 7/15- present  
 Justin Kaspar, PhD 7/16 - present  
 Natalie Maricic 10/16 - present

#### *Visiting Scientists*

Sug-Joon Ahn (Associate Professor, Dental Research Institute and Department of Orthodontics, School of Dentistry, Seoul National University) Jan. 2007 - Dec. 2008; Also June/July 2012  
 Tong Huichun (Associate Professor, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China) March 2009 – March 2010  
 Kyung-hee Kang (Professor, College of Medical Science, Chungnam, Korea) August, 2009.

#### *Other Students*

Marianela Olivares, 1991, Short-term Training: Minority Students in Health Professional Schools; 1992, AADR Student Research Fellow; 1993, International Association for Dental Research John Gray Fellowship  
 Hodan Rabile, 1995 Short-term Training: Minority Students in Health Professional Schools  
 Evangelia Morou-Bermúdez, 1991-1994, Pediatric Dentistry Resident, Eastman Dental Center  
 Christine Hervas, 1996 Short-term Training: Minority Students in Health Professional Schools  
 Elizabeth Gonzales, 1997 Short-term Training: Minority Students in Health Professional Schools  
 Hong Li, 1998-1999, Pediatric Dentistry Resident, Eastman Dental Center  
 José Lemos, 1998-2000, Ph.D. student, Federal University of Brazil, Fellowship.  
 Johanna Ocasio, 1999 Short-term Training: Minority Students in Health Professional Schools  
 Marci Barnes, 2000 Short-term Training: Minority Students in Health Professional Schools.  
 Yesenia Garcia, 2001 Short-term Training: Minority Students in Health Professional Schools.  
 Marinella Laport, 2001, Ph.D. student, Federal University of Brazil, ASM Latin American Fellow.  
 Stephanie Walker, 2002 Short-term Training: Minority Students in Health Professional Schools.  
 Marcelle Nascimento, 2003, DMD, Ph.D. Student, Sao Paulo, Brazil. (Fellowship)  
 Marlise Klein, 2005, DMD, PhD Student, Sao Paulo, Brazil (Fellowship)  
 Qiang Guo, 2011, DMD/PhD Student, West China University, Chengdu (Fellowship)  
 Lulu Chen, 2016, DMD/PhD Student, West China University, Chengdu (Fellowship)

#### *Undergraduates and Professional Students*

Brandon Kroll (Biology); Spring Semester and Summer, 1993, Independent Study (BIO395)

Thomas Hall (Biology); Dekiewet Summer Fellow, 1995, Fall, 1995, Independent Study (BIO395)  
David Mendelsohn (Biology); Dekiewet Summer Fellow, 1997, Fall 1997, Independent Study (BIO395)  
Chris Browngardt (Microbiology), Independent Study (MBI395) Spring 1999  
Jennifer Zubek (Microbiology), Independent Study (MBI395) Spring, 1999, Bausch and Lomb Summer Fellow, Summer 1999.  
Stavros Katsetos (Microbiology), Independent Study (MBI395), Fall 1999.  
Erich Vorlop (Microbiology), Independent Study (MBI395) Spring, 2000.  
Jean Publicover (Microbiology), Independent Study (MBI395) Spring, 2000.  
Brian Kehoe (Microbiology), Independent Study (MBI395) Fall, 2001.  
Thomas Brown Jr. (University of Florida, Microbiology), 2002, 2003  
Shelly Prakash (University of Florida, Microbiology), 2002 (DMD, UF)  
Max Jameson (University of Florida, Microbiology), 2003-2005 (PhD program))  
Patrick Mokris (DMD student, Univ. Florida) Summer, 2003 (DMD, UF)  
Melissa Candella (University of Florida, Microbiology) Summer, 2004 (DMD, Pitt)  
Vanessa Lin (University of Florida, Microbiology) Summer, 2004, 2005 (DMD, Pitt)  
David Yates (DMD student, U. Florida) Summer, 2004 (DMD, UF)  
Jose Puentes (University of Florida, Microbiology) Spring, 2005  
Robert Weaver (DMD student, U. Florida) Summer, 2005 (DMD, UF)  
Yaima Luzardo (University of Florida, Microbiology, UF Scholars Program) Spring, 2006 – Summer, 2007 (PhD Program, UF)  
David James (University of Florida, Microbiology) Summer, 2006 (PhD Program, UAB)  
Maggie Wang (DMD student, U. Florida) Summer, 2006 – present (DMD, UF)  
Claudia Kusano (U. Florida undergrad) Summer/Fall, 2006, Spring 2007 (PhD Program, UF)  
Chris Bonesteel (DMD student, U. Florida) Summer, 2007 (DMD Program, UF)  
Sunny Patel (U. Florida Undergraduate, UF Scholars Program) Fall, 2007, Spring, Summer, Fall 2008 (DMD Program, UF)  
Steve Garrett (University of Florida, Microbiology) Spring 2008 (DMD Program, UF)  
Megan Keskar (DMD student, U. Florida) Summer, 2008 (DMD Program, UF)  
Darline Ramos (DMD student, U. Florida) Summer, 2009 (DMD Program, UF)  
Ann Sagstetter (DMD student, U. Florida) Summer 2010 (DMD Program, UF)  
Roshan Kalra (U. Florida Undergrad, UF Scholars Program) Spring, 2011 – Summer 2012  
Cristina McComber (U. Florida Undergrad) Fall, 2011; Spring/Summer, 2012  
Tabitha John (U. Florida Undergrad) Fall, 2011; Spring 2012  
Nourhan Abdel-Rahim (DMD student, U. Florida) Summer 2012 (DMD Program, UF)  
Ariana Rosa-Alberty (U. Florida, Microbiology) Fall 2013, Spring 2014 HHMI Science for Life Fellow-Summer 2014  
Marissa Singh (U. Florida, Microbiology) Summer A, Fall, 2014  
Andres Alvarez (co-mentor) (DMD student, U. Florida) Summer 2014 (DMD Program, UF)  
Jessica Melo (U. Florida, Microbiology) Summer 2015. Co-mentor with Sang-Joon Ahn  
Adrian Reyes (U. Florida Undergraduate) Summer 2015  
Megan Grace (U. Florida, Biology) Fall 2015, Spring, Summer 2016  
Lauro Londoño (DMD Student, U. Florida) Summer 2016  
Justin Norell (DMD Student, U. Florida) Summer 2016  
Kyulim Lee (DMD-PhD Student, U. Florida) Spring/Summer 2016 (Part-time volunteer on research projects)  
Jenna Shumann (DMD Student volunteer) Summer, Fall 2016

**FORMAL FACULTY MENTORING ASSIGNMENTS**

Marcelle Nascimento Fagerberg (2008-present) Associate. Prof. w tenure -  
Department of Restorative Dental Sciences, U. Florida  
Seunghee Cha (2009-present) Associate Prof. w tenure, UFCD Oral and  
Diagnostic Sciences  
Kesavalu Lakshmyya (2008-present) Assoc. Prof. w tenure, UFCD  
Periodontology

**PRESENTATIONS:**

Gordon Conference, The Biology of Spirochetes, 1994  
International Conference on Oral Biology, 1996  
Gordon Conference on Microbial Stress Responses, 1996, 2000  
American Society for Microbiology, 1988, 1989, 1993, 1995, 1997, 1999, 2002,  
2004, 2011  
International/American Association for Dental Research, 1985-2002, 2004, 2010  
Wind River Conference on Prokaryotic Biology, 1997  
2<sup>nd</sup> Indiana Conference-Microbial Pathogenesis, 1997  
International Conference on Streptococcal Genetics, 1986, 1990, 1994, 1998,  
2002, 2008, 2016

**INVITED PRESENTATIONS**

6/17 Invited Keynote Speaker, U. Rochester School of Medicine/Dentistry's Eastman  
Institute for Oral Health Centennial Celebration  
7/16 Invited Keynote Speaker, International Conference on Streptococcal Genetics,  
Washington, D.C.  
8/13 Invited Symposium Speaker, Annu. World Dent. Congress, Istanbul, Turkey  
3/13 Invited Symposium Speaker, Intl. Assoc. Dent. Res. Mtg. Seattle, WA  
4/12 Invited Seminar Speaker, Forsyth Institute, Boston, MA  
3/12 Invited Symposium Speaker, Amer. Dent. Ed. Assoc., Orlando, FL  
1/12 Invited Speaker, International Conference on Novel Anticaries and  
Remineralization Agents II, Viña del Mar, Chile  
6/11 Keynote Speaker, Post genomics for the oral microbiome conference, Rochester,  
NY  
5/11 Invited Symposium Speaker, ASM Annual Meeting, New Orleans LA  
2/11 Invited Seminar Speaker, UAB Medical School, Birmingham, AL  
2/11 Invited Seminar Speaker, UAB Dental School, Birmingham, AL  
10/10 Invited Seminar Speaker, LSU Health Science Center, New Orleans, LA  
9/10 Society for General Microbiology Annu. Mtg., Symposium on Acid Stress,  
Nottingham, UK  
7/10 International Association for Dental Research Annu. Mtg. Satellite Symposium,  
Barcelona Spain  
10/09 William H. Bowen Lecture, University of Rochester Medical Center, Rochester NY  
10/09 Invited Lecturer, Oral Microbiology (MBI581) University of Rochester Medical  
Center, Rochester NY  
10/09 Plenary Speaker, University of California at San Francisco Dental School,  
Research and Clinical Excellence Day  
6/09 Seminar Speaker, Invited by students in MinnCREST T32 training program. U.  
Minnesota, Minneapolis, MN  
2/09 Seminar Speaker, Methodist Hospital Research Institute, Houston, Tx

- 12/08 Speaker, Dean's Seminar Series, University of Toronto, Canada
- 11/08 Seminar Speaker, U. South Florida, Division of Cell Biology, Microbiology and Molecular Biology
- 10/08 Speaker, Ohio State University College of Dentistry Distinguished Lecture Series
- 9/08 Seminar Speaker, University of Missouri Kansas City Medical School, Department of Microbiology
- 3/08 Speaker, Symposium on the Human Microbiome, U. Michigan School of Public Health, Ann Arbor, MI
- 1/08 Speaker and Session Chair, International Conference on Novel Caries and Remineralization Agents, Viña del Mar, Chile.
- 4/07 Seminar Speaker, University of Oklahoma, Oklahoma City, OK.
- 3/07 Symposium Speaker, IADR Annual Meeting, New Orleans.
- 3/06 Seminar Speaker, Emory University Medical School. Atlanta, GA.
- 10/05 Symposium Speaker, University of Vermont, Burlington, VT
- 9/04 Symposium Speaker, UFCD Presidential Inaugural Symposium
- 3/04 Symposium Speaker, IADR Annual Meeting, Honolulu
- 4/03 Seminar Speaker, UCLA Dental Research Institute, Los Angeles, CA.
- 11/02 Symposium Speaker, Annual Meeting of the Southeastern Branch of the American Society for Microbiology, Gainesville, FL.
- 9/02 Seminar Speaker, Department of Microbiology and Cell Science, University of Florida, Gainesville, FL.
- 4/02 Lecturer; University of Puerto Rico School of Dentistry, San Juan, Puerto Rico
- 4/02 Lecturer; Department of Biochemistry and Molecular Biology, University of Puerto Rico School of Medicine, San Juan, Puerto Rico
- 10/01 Speaker; Brazilian Society for Microbiology Annual Meeting, Foz du Igacu, Brazil
- 3/01 Speaker; State University of New York at Buffalo, Buffalo, NY
- 1/01 Seminar Speaker; University of Florida, Gainesville, FL.
- 09/00 Speaker; "Medical Implications of Biofilms," Exeter, UK
- 4/98 Speaker, European Research Group on Oral Biology, Zurich, Switzerland
- 4/98 Speaker; ASM Conference on Streptococcal Genetics, Vichy, France
- 6/97 Seminar Speaker; University of Pittsburgh School of Dental Medicine, Pittsburgh, PA
- 5/97 Speaker; Microbial Pathogenesis: Current and Emerging Issues, Indianapolis, Indiana
- 3/96 Speaker; International Conference on Oral Biology, Monterey, California
- 9/94 Seminar Speaker; Georgetown University Medical School, Department of Microbiology
- 5/94 Speaker; Annual Society for Microbiology International Conference on Streptococcal Genetics, Santa Fe, New Mexico
- 1/94 Participant; Gordon Conference on the Biology of Spirochetes, Ventura California
- 5/93 Speaker; Annual Society for Microbiology Annual Meeting: Symposium on Gene Regulation in Gram-positive Bacteria
- 9/92 Seminar Speaker; SUNY Buffalo Dental School
- 7/85 Lecture on Microbial Genetics, European Organization for Caries Research - Summer School; Angers, France

#### **MISCELLANEOUS:**

Ongoing: *Ad hoc* reviews for various dental, musculoskeletal and microbiology-oriented study sections

*Ad hoc* Reviewer, NIDCR Intramural Research Program, October, 2007  
Organizer – 7<sup>th</sup> International Conference on Streptococcal Genetics, Saint Malo, France, June 2006  
Invited Participant, National Institutes of Dental Research Planning Workshop on Infectious Diseases, 11/97  
National Institute for Genome Research--Genome Study Section  
National Institute for Dental Research--Oral Biology and Medicine Study Section I (approx. 2 meetings/year)  
National Institute for Dental Research--SBIR program  
National Institute for Dental Research--Scientific Meeting Funding  
AIDS and Related Research Study Section  
Medical Research Council, Canada (Ad hoc external reviews)  
Medical Research Council, Ottawa, Canada (Dental Sciences Study Section)  
Manitoba Health Research Council  
Bioengineering Research Partnerships RFA (Ad hoc external reviewer)  
Reviewer for The Wellcome Trust  
Member - NIDCR Caries Technical Advisory Panel (2002)  
ADA-CDC Expert Panel on Non-fluoride anti-caries agents (2010)

*Periodic consulting work over the years for:*

Colgate-Palmolive  
The Procter and Gamble Co.  
Unilever Research  
Warner-Lambert Co.  
Johnson & Johnson  
Mars/Wrigley Co.