PgLouisville2022: The 4th International Conference on *Porphyromonas gingivalis* and Related Species in Oral and Systemic Diseases

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Sunday, May 15

15:00 – 17:00 Registration open

17:30 – 18:50 Welcome Dinner

18:50 **Jan Potempa: Introduction to the Conference**

19:00 – 20:30 **SESSION I:** ***Emerging Concepts in Microbiology, Immunology & Disease***

Chair: *tbn*

Mary DAVEY: *Sphingolipid synthesis and the pathophysiology of* Porphyromonas gingivalis

Patricia DIAZ: *Colonization, persistence and pathogenicity of* P. gingivalis *in the context of a polymicrobial community*

Esra SAHINGUR: *Harnessing nature's elements to preserve periodontal health*

20:30 – 22:00 **Social get together and informal discussions – open bar**

Monday, May 16

7:30 – 8:20 Coffee/Registration

8:20 – 8:30 **Welcome by Gerard Bradley, Dean University of Louisville School of Dentistry**

8:30 – 10:20 **SESSION II:** ***Polymicrobial Synergy and Dysbiosis in the Etiology of Periodontal Diseases***

Chair: *tbn*

Atsuo AMANO: *Molecular basis of colonization of periodontal pathogen on periodontal tissues*

Hansel FLETCHER: *Oral microbial community dynamics: strategies for adaptation/survival and virulence regulation in* P. gingivalis

George HAJISHENGALLIS: *Interactions of P. gingivalis with complement and host modulation in periodontitis*

Octavio GONZALES: *Modulation of epithelial innate immunity by* P. gingivalis *and oral dysbiosis*

2-3 short communication selected from abstracts

10:20 – 10:50 **COFFEE BREAK**

10:50 – 12:35 **SESSION III:** ***Maturation, Secretion and Mechanistic Insights into Structure and Function of Virulence Factors of Periodontal Pathogens***

Chair: *tbn*

Koji NAKAYAMA: *Fine Structure of the Type V Pilus*

Eric REYNOLDS: *Protein interactions in the Type IX Secretion System of* P. gingivalis *spin a web of virulence*

Maria SOLA: *Probing the molecular basis of* P. gingivalis *PorXY System*

F. Xavier GOMIS-RUTH: *Structural insights into the PorU signal peptidase and sortase of the* P. gingivalis *Type IX Secretion System (T9SS)*

2-3 short communication selected from abstracts

12:35 – 14:00 **LUNCH & POSTER VIEWING**

14:00 – 15:30 **SESSION IV:** ***Emerging Periodontal Pathogens and Their Network of Interactions with the Host and other Oral Bacteria***

Chair: *tbn*

Silvia URIARTE: *Emerging and established periodontal pathogens: coalition to combat neutrophil effector functions*

2-3 short communication selected from abstracts

15:30 – 16:00 **COFFEE BREAK**

16:00 – 17:30 **SESSION V:** ***A Holistic Approach to Understand Relationship Between Oral Microbiome and Systemic Diseases***

Chair: *tbn*

Shauna CLUSHAW: *Periodontitis and Rheumatoid arthritis - the link at the immune response*

Steve DOMINY: *Randomized Trial of the Gingipain Inhibitor Atuzaginstat for Mild-to-Moderate Dementia*

2-3 short communication selected from abstracts

Sponsor Presentation – *tbn*

17:30 – 19:00 **POSTER SESSION & INFORMAL DISCUSSIONS**

19:00 **Free time – dinner on your own**

Tuesday, May 17

8:00 – 9:30 Start-up Morning Coffee

8:30 – 10:20 **SESSION VI:** ***Genetic and Inflammatory Interplay in* P. gingivalis *Physiology and Virulence***

Chair: *tbn*

Ann GRIFFEN: *Acquisition and personalization of the oral microbiome* (to be confirmed)

Gabriel NUSSBAUM: *TLR2 protein-protein interactions in response to the periodontal pathogen* P. gingivalis

Chunhao (Chris) LI: *Developing a mark free mutagenesis system for* P. gingivalis

2-3 short communication selected from abstracts

10:20 – 10:50 **COFFEE BREAK**

10:50 – 12:40 **SESSION VII:** ***New Host and Bacteria-derived Targets with Relevance to Prevention/Treatment of Periodontal Diseases***

Chair: *tbn*

Chris CUTLER: *Exogenous and endogenous dendritic cell-derived exosomes: roles in immune-therapy and -pathogenesis*

Rich DARVEAU: *Experimental gingivitis: lessons learned from chemokine multi-plex and bacterial sequence analysis*

Mike CURTIS: *Genomic analysis of* P. gingivalis (to be confirmed)

2-3 short communication selected from abstracts

12:40 – 14:00 **LUNCH & POSTER VIEVING**

14:00 – 15:45 **SESSION VIII:** ***Spatial, Temporal and Physical Constraints in Periodontal Pathogenicity***

Chair: *tbn*

Gary BORISY: Metapangenomics of the oral microbiome (to be confirmed)

Jorge FRIAS-LOPEZ: CRISPR-Cas systems control virulence in *P. gingivalis* (to be confirmed)

2-3 short communication selected from abstracts

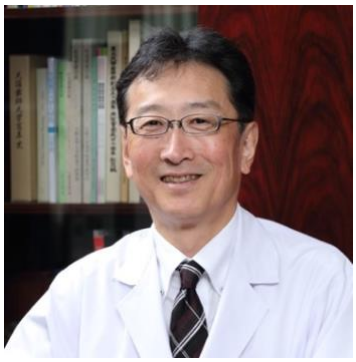
15:45 – 17:30 **POSTER SESSION II & INFORMAL DISCUSSIONS**

17:30 Free time

19:00 - 23:00 **Conference Dinner and Closing Remarks**

Wednesday, May 18, 2022: DEPARTURES

INVITED SPEAKERS



AMANO, Atsuo - Department of Preventive Dentistry, Osaka University Graduate School of Dentistry, 1-8 Yamadaoka, Suita-Osaka, 565-0871, Japan. E-mail: amanoa@dent.osaka-u.ac.jp (The participation is conditional depending on COVID-19 related restrictions and will be confirmed in March 2022)

P. gingivalis spreads its infection in periodontal tissues by two routes: intracellular and extracellular invasion. We have shown the molecular basis of the bacterial colonization of the tissues using 3-D periodontal tissue model. We are also conducting clinical research on the application of metabolomics analysis of saliva to the diagnosis of periodontal diseases and monitoring of systemic health.

BORISY, Gary G. - Department of Microbiology, The Forsyth Institute, Cambridge, Massachusetts, United States of America. E-mail: gborisy@forsyth.org

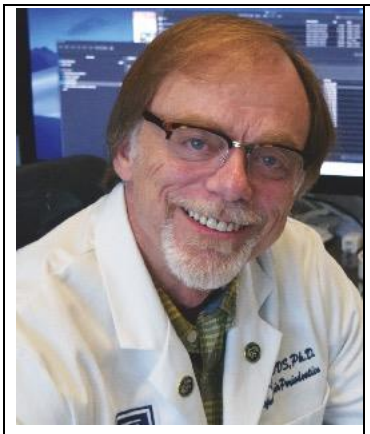
(to be confirmed)

CULSHAW, Shauna - Glasgow Dental School, School of Medicine, College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow, UK, e-mail: shauna.culshaw@glasgow.ac.uk

Shauna's long-standing obsession is understanding inflammation and the damage it can do in the context of periodontitis. Her team primarily investigates the immune response in the oral cavity and recently focused on changes in inflammation and the microbiota following periodontal treatment, and how the immune response might link periodontitis and rheumatoid arthritis.

CURTIS, Mike A. - Dental Institute, King's College London, Guy's Hospital Tower Wing, SE1 9RT, London, United Kingdom. E-mail: mike.curtis@kcl.ac.uk

(to be comfirmed)



CUTLER, Chris W. - Department of Periodontics, Dental College of Georgia, Augusta University, Augusta, GA 30912, USA. E-mail: CHCUTLER@augusta.edu

DARVEAU, Rich - Department of Periodontics, University of Washington School of Dentistry, Seattle, WA, 98195, USA. E-mail: rdarveau@uw.edu

The Darveau laboratory is keenly interested in how the innate defense status of healthy periodontal tissue is maintained. Periodontal innate defense results in a process termed inflammatory surveillance, where low level, highly selective expression of inflammatory mediators maintains periodontal health both by protecting against bacterial infection and assuring proper tissue turnover processes.

DAVEY, Mary E. - Department of Oral Biology, College of Dentistry, University of Florida, Gainesville FL, USA. E-mail: mdavey@dental.ufl.edu

The Davey lab is interested in the basic physiology and pathogenic potential of *Porphyromonas gingivalis (Pg).* In particular, we are interested in how *Pg* responds to certain perturbations and how this results in changes in its colonization, surface migration, and virulence. Current studies suggest that *P*g's associations within the oral microbiome may defend against or direct development of a pathogenic community, leading to chronic inflammation of gingival tissues. Our over-overarching model is that shifts in sphingolipid biosynthesis and production of K-antigen capsule marks the transition to virulence and disruption of homeostasis.

DIAZ, Patricia I. - Department of Oral Biology, School of Dental Medicine, University at Buffalo, State University of New York, Buffalo, NY, USA . E-mail: pidiazmo@buffalo.edu

	**DOMINY, Stephen** – Cortexyme, E-mail: sdominy@cortexyme.com
	**FLETCHER, Hansel M.** - Division of Microbiology and Molecular Genetics, Department of Basic Sciences, School of Medicine, Loma Linda University, Loma Linda, CA, USA. E-mail: hfletcher@llu.edu
	FRIAS-LOPEZ, Jorge - Department of Oral Biology, College of Dentistry, University of Florida, Gainesville, FL, USA. E-mail: jfrias-lopez@dental.ufl.edu (to be confirmed)
	**GOMIS-RUTH, F. Xavier** - Molecular Biology Institute of Barcelona, CSIC; Barcelona Science Park, Helix Building; c/Baldiri Reixac, 15-21; E-08028 Barcelona Spain. E-mail: fxgr@ibmb.csic.es Dr. Gomis-Rüth's Proteolysis Laboratory focuses on the study of proteolytic enzymes, their zymogens and regulation through protein inhibitors, as well as of host-microbiome interactions. To this aim, they use biochemical, molecular biology, biophysical and structural approaches. One main line of research, which is carried out in close collaboration with the groups of Jan Potempa, is centered on the study of molecular mechanisms of *P. gingivalis* for thriving and infection.

GONZALEZ, Octavio – University of Kentucky, College of Dentistry, Lexington, KY USA. e-mail: ogonz2@email.uky.edu

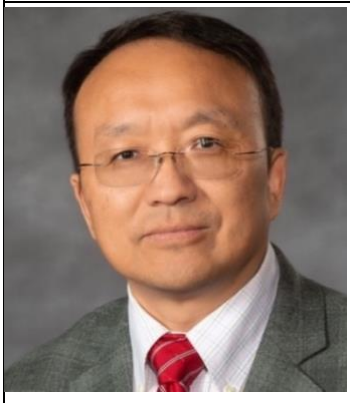
Main research interests are (i) the effects of aging on the innate immune responses of the oral mucosa, and (ii) the role of oral commensal- and pathogenic bacteria-epithelial cell interactions in health and early events of the pathogenesis of periodontal disease

GRIFFEN, Ann L. - Section of Oral Biology, College of Dentistry, The Ohio State University, 3185 Postle Hall, 305 W. Twelfth Avenue, Columbus, OH 43210, USA. E-mail: griffen.1@osu.edu

(to be confirmed)

HAJISHENGALLIS, George - Department of Microbiology, Penn Dental Medicine, University of Pennsylvania, Philadelphia, PA, USA. E-mail: geoh@upenn.edu

Dr. Hajishengallis' field of interest lies at the host-microbe interface where his work has illuminated novel mechanisms of microbial dysbiosis and inflammation. A current focus of his laboratory is on trained myelopoiesis and its impact on health and disease. He has published over 210 papers and combines basic and translational research; his preclinical work has recently led to a successful complement-targeted phase 2a clinical trial in patients with gingival inflammation. He received the IADR Distinguished Scientist Award in Oral Biology in 2012 and the NIH/NIDCR MERIT Award in 2016. He was named Highly Cited Researcher (Clarivate/Web-of-Science) in 2018, 2020 and 2021



LI, Chunhao (Chris) - Philips Institute of Oral Health Research, Virginia Commonwealth University, Richmond, Virginia, USA, E-mail: cli5@vcu.edu

My current research interest focuses on *Treponema denticola* and *Porphyromonas gingivalis*, two keystone pathogens associated with human periodontitis. By using an approach of genetics, biochemistry, biophysics, structural biology, and animal models, my lab has identified several new virulence factors in both *T. denticola* and *P. gingivalis*. In addition, my lab has developed several new genetic tools for *T. denticola*.

	**NAKAYAMA, Koji** – Division of Microbiology and Oral Infection, Department of Molecular Microbiology and Immunology, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan. E-mail: knak@nagasaki-u.ac.jp (The participation is conditional depending on COVID-19 related restrictions and will be confirmed in March 2022)
	**NUSSBAUM, Gabriel** - Department of Periodontology, Faculty of Dental Medicine, Hebrew University-Hadassah Medical Center, Jerusalem 91120, Israel. E-mail: gabrieln@ekmd.huji.ac.il Our current focus is on host-pathogen signaling pathways in the oral cavity that contribute to bacterial immune escape and dysbiosis. We are also investigating the potential causal role of oral pathogens such as *P. gingivalis* in the development of pancreatic cancer.
	**REYNOLDS, Eric C.** - Oral Health Cooperative Research Centre, Melbourne Dental School, The University of Melbourne, Carlton, Victoria, Australia. E-mail: e.reynolds@unimelb.edu.au
	**SAHINGUR, Sinem Esra** - Penn Dental Medicine, University of Pennsylvania, Philadelphia, PA, USA. E-mail: sahingur@upenn.edu Dr. Sahingur is a board certified periodontist and an immunologist. Her research focuses on defining the key immune and inflammatory pathways in the course of periodontal disease and the connection between oral and systemic health. Sahingur and her team initiated the studies that revealed the involvement of nucleic acid sensing and ubiquitination in periodontal tissue homeostasis and the link between oral cavity, gut, and liver axis. She also carries out translational studies which investigate the effect of life style changes and utilization natural compounds to preserve periodontal health.

SOLA, Maria - Structural MitoLab; Department of Structural Biology ("María de Maeztu" Unit of Excellence); Molecular Biology Institute of Barcelona, CSIC; Barcelona Science Park, Helix Building; c/Baldiri Reixac, 15-21; E-08028 Barcelona Spain. E-mail: maria.sola@ibmb.csic.es

URIARTE, Silvia M. - Department of Oral Immunity and Infectious Diseases, University of Louisville School of Dentistry, USA. E-mail: silvia.uriarte@louisville.edu