

OB news

The E-newsletter of the UFCD's Oral Biology Department Fall 2021

Editor: Luis R. Martinez

A MESSAGE FROM THE EDITOR

Welcome to a new academic year! I can't believe that Thanksgiving is just around the corner. There are many things going on in the department. The OB seminar series coordinated by Dr. Bernadett Papp is a testament of the outstanding work performed by graduate students, postdocs, and



faculty. In the Spring semester, we will welcome a new faculty, Dr. Nadeem Khan (<https://und.edu/directory/nadeem.khan>), whose research focuses on pulmonary responses to bacterial and viral infections. In addition, a search for a new Oral Biology department chair is under way. The beauty of academic departments is that they are organic and fluid, therefore, change is inevitable and we have to embrace it. The excitement of the uncertainty and the injection of new ideas are important reasons many of us are doing this. I am looking forward to a great 2021-2022 academic year. This 4th issue of OB news summarizes the past three months of many accomplishments and successes of students, research fellows, and faculty in the department. Please begin collecting your news for the Winter quarter (February 2022). If you have any suggestion in how to improve this communication email me your thoughts to LMartinez@dental.ufl.edu. Thank you very much for your support. Have a wonderful and productive end of the semester!

NEWS FROM THE OB OFFICE STAFF

Dear Oral Biology,



Kyra Martin is a DMD/PhD student.



Nicolle de Mello Fiallos is an exchange graduate student from Brazil working in the Lemos-Abranches lab.



Brooke Ritchie is a lab assistant in the Lemos-Abranches lab.



Claudia Charles-Niño is a post-doc in the Martinez lab.



Shivani Dave is a technician in the Martinez lab.



Vanessa Enriquez-Berumen is a post-doc in the Martinez lab.



Richard Ong is dental student in the 2021 UFCD Summer Research Program in the Papp lab.



Reza Vaziri is a technician in the Papp lab.

NEWS FROM THE STUDENTS

Lemos-Abranches

Kyra Martin (1st year DMD/PhD student) won the Summer Research Competition and will represent UFCD in SCADA competition at the 2022 IADR/AADOCR conference in Atlanta, GA.

Martinez

Mark Fischer (1st year DDS student) presented in the UFCD's Summer Research Competition.

Papp

Natalie Atyeo (DMD-PhD candidate, F30 fellow) and Dr. Papp attended the virtual 2021 IADR dental research conference in July. Natalie gave an oral presentation entitled "Oral herpesvirus infection induces FOXQ1, a novel lytic cycle promoter". Natalie was selected to compete in the prestigious 2021 IADR Hatton competition in basic science category, where she competed and was awarded with the 1st place in the North-American Division. She continued onto the 2021 IADR International Hatton competition, where she was awarded with 1st place in the worldwide research competition.

Natalie was among the eight recipients of the 2021 AADR Student Research Fellowship.

Natalie presented on the 2021 NIDCR Trainee Day in July and the 2021 International Herpesvirus Workshop in August 2021.



Toth

Seung Jin (James) Jang (DMD-PhD student) won 3rd place on Student Competition for Advancing Dental Research and its Application with his research presentation at AADR 2021. The title of his talk: Gene regulatory mechanisms of viral interferon regulatory factor 1.

Lauren Roberts Combs (PhD student) had an oral presentation on the 45th Annual International Herpesvirus Workshop (August 02-06, 2021). The title of the talk: KSHV RTA degrades host factor ID2, a negative regulator of basic helix-loop-helix transcription factors, to promote KSHV lytic cycle.

Lauren McKenzie Spires (PhD student) was co-author on a poster presented on the 45th Annual International Herpesvirus Workshop (August 02-06, 2021). Lauren R. Combs, Lauren McKenzie Spires, and Zsolt Toth: KSHV RTA degrades host factor ID2, a negative regulator of basic helix-loop-helix transcription factors, to promote KSHV lytic cycle.

See-Chi Lee (PhD student) had an oral presentation on the 45th Annual International Herpesvirus Workshop (August 02-06, 2021). The title of the talk: Identification of a PRC1-independent role of RYBP in the establishment of KSHV latency.

See-Chi Lee (PhD student) received a Merit-Based Award from the 45th Annual International Herpesvirus Workshop Organizing Committee based on her submitted abstract to the international conference.

Congratulations to all the students Passing the Qualifying Exam:

See-Chi Lee (September 1, 2021)

Lauren McKenzie Spires (September 15, 2021)

Seung Jin (James) Jang (September 20, 2021)

Zheng

Zachary Taylor joined the lab as a second year BMS student (MSI concentration).

The 1st Rotation Presentations for the Immunology and Microbiology concentration were held on October 21st, 2021.

NEWS FROM THE RESEARCH FELLOWS

Gibson

Dr. Fernanda Rocha gave an oral presentation and Co-Chaired a session at the 2021 IADR/AADOCR/CADR General Session held virtually – July 21-24! Congratulations Fernanda!

Lemos-Abranches

Dr. Jessica Kajfasz co-authored a study published in *Infection and Immunity*.

Martinez

Dr. Vanessa Enriquez-Berumen is supported by the UFCD's Comprehensive Training Program in Oral Biology (NIH NIDCR Award # T90DE021990/R90DE022530).

Toth

Dr. Abhishek Kumar had a poster presentation on the 45th Annual International Herpesvirus Workshop (August 02-06, 2021). The title of the poster was “Lytic reactivation of KSHV requires host epigenetic factors counteracting Polycomb-mediated gene silencing”

NEWS FROM THE FACULTY

Brady

Mishra S, Brady LJ. 2021. The cytoplasmic domains of *Streptococcus mutans* membrane protein insertases YidC1 and YidC2 confer unique structural and functional attributes to each paralog. **Front Microbiol.** **12:** 760873.

<https://www.frontiersin.org/articles/10.3389/fmicb.2021.760873/full>

Chan

von Muhlen CA, Garcia-De La Torre I, Infantino M, Damoiseaux J, Andrade LEC, Carballo OG, Conrad K, Carvahlo Francescantonio PL, Fritzler MJ, Herold M, Klotz W, de Melo Cruvinel W, Mimori T, Satoh M, Musset L, Chan EKL. 2021. How to report the antinuclear antibodies (anti-cell antibodies) test on HEp-2 cells: guidelines from the ICAP initiative. **Immunol Res.** **69 (6):** 594.

<https://link.springer.com/article/10.1007%2Fs12026-021-09233-0>

Culp

Dr. David Culp retired in July 2021. He was an outstanding colleague, fantastic lecturer, and a great coordinator of the UFCD DMD-PhD. We wish him to have a comfortable and wonderful retirement, full of golf courses and countless memories with his family.

Davey

Kim H-M, Ranjit DK, Walker AR, Getachew H, Progulske-Fox A, Davey ME. 2021. A Novel Regulation of K-antigen Capsule Synthesis in *Porphyromonas gingivalis* Is Driven by the Response Regulator PG0720-Directed Antisense RNA. **Front Oral Health.** **2:** 701659. <https://www.frontiersin.org/articles/10.3389/froh.2021.701659/full>

Nichols FC, Bhuse K, Clark RB, Provas AA, Carrington E, Wang Y-H, Zhu Q, Davey ME, Dewhirst FE. 2021. Serine/Glycine Lipid Recovery in Lipid Extracts from Healthy and Diseased Dental Samples: Relationship to Chronic Periodontitis. **Front Oral Health.** **2:** 698481. <https://www.frontiersin.org/articles/10.3389/froh.2021.698481/full>

Frias-Lopez

New NIH funding in collaboration with Dr. Gibson! The proposal is entitled: A novel mechanism of virulence control in *Porphyromonas gingivalis* (7/2021 - 6/2026).

Principal Investigators: Jorge Frias-Lopez, Frank Gibson. NIH/NIDCR Grant Number: 2R01DE021553-05A1, \$3,677,164

Colgate-Palmolive Grant, \$97,121, The effect of 3 antibiofilm compounds on the metatranscriptome of the oral microbiome.

Dr. Frias-Lopez presented in: The 5th Penn Periodontal Conference. University of Pennsylvania. Temporal profiling of host-microbiome metatranscriptome during periodontitis progression. 6/2021, Philadelphia, PA and the IADR/AADR/CADR General Session. Host-Microbial Metatranscriptomic Analysis. 7/2021.

Foreman S, Ferrara K, Hreha TN, Duran-Pinedo AE, Frias-Lopez J, Barquera B. 2021. Genetic and Biochemical Characterization of the Na⁺/H⁺ Antiporters of *Pseudomonas aeruginosa*. **J Bacteriol.** **203 (18)**: e0028421.

Gibson

Two new 5-year Multi-PI R01s! Congratulations!

DE031159-01: Microbial sphingolipids and suppression of host inflammation in periodontal disease (Gibson/Davey - MPI); ~\$2 Million direct costs (NIDCR)

DE029775-01A1: A novel mechanism of virulence control in *Porphyromonas gingivalis* (Frias-Lopez/Gibson - MPI); ~\$2.4 Million direct costs (NIDCR)

New role as member of Editorial Boards for the Journal of Dental Research and the Journal of Oral Microbiology

New administrative role: UFCD DMD-PhD Coordinator

Rocha FG, Berges A, Sedra A, Ghods S, Kapoor N, Pill L, Davey ME, Fairman J, Gibson III FC. 2021. A *Porphyromonas gingivalis* Capsule-Conjugate Vaccine Protects from Experimental Oral Bone Loss. **Front Oral Health.** **2**: 686402.

<https://www.frontiersin.org/articles/10.3389/froh.2021.686402/full>

Lemos-Abranches

Congratulations to Dr. Jacqueline Abranches who was promoted to Associate Professor with tenure.

New Funding:

NIH/NIDCR T90 DE021990 – Comprehensive Training Program in Oral Biology (PD: Lemos JA) 07/01/21- 06/30/26

NIH/NIDCR R90 DE022530 – Comprehensive Training Program in Oral Biology (PD: Lemos JA) 07/01/21- 06/30/26

Corporate (Vaxcyte, Inc.) – Vaccine Evaluation to Prevent Root Canal Failure (PI: Lemos JA) 06/01/2021-05/31/2022

NIH/NIDCR DE022559-09S1 - Career development supplement entitled “Association of CBP+ *Streptococcus mutans* with root caries in older adults” for Dr. Bruna Garcia (PI: Abranches J, Lemos JA) 09/01/2021-08/31/20

Dr. Jose Lemos presented “The Two Faces of Zinc in *Streptococcus mutans* Pathophysiology” at the University of Illinois at Urbana-Champaign.

Kundra S, Lam LN, Kajfasz JK, Casella LG, Andersen MJ, Abranches J, Flores-Mireles AL, Lemos JA. 2021. c-di-AMP Is Essential for the Virulence of *Enterococcus faecalis*. **Infect Immun.** **89 (11):** e0036521. https://journals.asm.org/doi/10.1128/IAI.00365-21?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%20pubmed

di Cologna NM, Samaddar S, Valle CA, Vargas J, Alviles-Reyes A, Morales J, Ganguly T, Pileggi R, Brady LJ, Lemos JA, Abranches J. 2021. Amyloid Aggregation of *Streptococcus mutans* Cnm Influences Its Collagen-Binding Activity. **App Environ Microbiol.** **87 (21):** e0114921. https://journals.asm.org/doi/10.1128/AEM.01149-21?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%20pubmed

Martinez

Dr. Martinez wrote a spotlight profile in the ASM website to celebrate the Black in Micro week. A Black Woman's Journey in Microbiology: A Spotlight on Dr. Aisha Burton.

<https://asm.org/Articles/2021/October/A-Black-Woman-s-Journey-in-Microbiology-A-Spotligh>

Dr. Martinez participated of the ASM 2021 Hill day and advocated for funding and opportunities for underrepresented minorities by meeting with policy makers at the federal level.

He also presented in the journal club at the UF College of Veterinary Medicine.

Pires RH, Martinez LR, Mendes-Giannini MJS, Resende MA. 2021. Editorial: Pathogenesis of fungal biofilms in different environmental conditions and clinical outcomes. **Front Cell Infect Microbiol. 11:** 778458.

<https://www.frontiersin.org/articles/10.3389/fcimb.2021.778458/full>

Miller DR, Bu A-M, Gopinath A, Martinez LR, Khoshbouei H. 2021. Methamphetamine dysregulation of the central nervous system and peripheral immunity. **J Pharmacol Exp Ther. In Press.**

<https://jpet.aspetjournals.org/content/early/2021/09/17/jpet.121.000767.long>

Costa-Orlandi CB, **Martinez LR**, Bila NM, Friedman J, Friedman AJ, Mendes-Giannini MJS, Nosanchuk JD. 2021. Nitric oxide-releasing nanoparticles are similar to efinaconazole in their capacity to eradicate *Trichophyton rubrum* biofilms. **Front Cell Infect Microbiol. 11:** 684150.

<https://www.frontiersin.org/articles/10.3389/fcimb.2021.684150/full>

Papp

Dr. Papp presented on the 23rd International Workshop on Kaposi's Sarcoma Herpesvirus & Related Agents (June 21-24, 2021).

Progulske-Fox

Dr. Progulske-Fox co-authored a research article published in collaboration with Dr. Davey's lab in *Frontiers in Oral Health*.

Toth

Dr. Zsolt Toth spoke at the 23rd International Workshop on Kaposi's Sarcoma herpesvirus (KSHV) and Related Agents. The title of his talk was "RYBP is recruited to the KSHV genome in PRC1-independent manner and represses lytic genes during primary infection".

Zeng

Zeng L, Walker AR, Lee K, Taylor ZA, Burne RA. 2021. Spontaneous Mutants of *Streptococcus sanguinis* with Defects in the Glucose-Phosphotransferase System Show Enhanced Post-Exponential-Phase Fitness. **J Bacteriol.** **203 (22):** e0037521.