

RESEARCH SPOTLIGHT

TRANSLATING SCIENCE TO PRACTICE

Faculty, Student Research Showcased at IADR General Session

Showcasing Penn Dental Medicine research on an international stage, a significant number of faculty and students were part of the scientific program at the 2019 IADR/AADR/CADR General Session & Exhibition, held this summer in Vancouver. A group of 32 faculty and students presented research on a host of topics that ranged from periodontitis and cariogenic biofilms to stem cells and CAD/CAM ceramics.

Penn Dental Medicine also hosted a reception for alumni attending the meeting, where attendees also celebrated IADR award recipients from the School (see story, page 17).

Those faculty and students participating in the IADR scientific program, included the following.

SYMPOSIUM SPEAKERS

Optimization of a Novel Organic-mineral Bone Adhesive for Dental Bone Grafting

Dr. Joseph Fiorellini, Dept. of Periodontics

Mechanisms by Which Diabetes Alters the Host Response and Oral Microbiota to Increase Periodontitis

Dr. Dana Graves, Dept. of Periodontics

C. albicans - S. mutans Interactions in Cariogenic Biofilms: A Cross-kingdom Collaboration

Dr. Michel Koo, Dept. of Orthodontics & Divs. of Pediatric Dentistry/Community Oral Health

Gingiva Derived Mesenchymal Stem and Progenitor Cells for Soft Tissue Regeneration

Dr. Anh Le, Dept. of Oral & Maxillofacial Surgery

A Roadmap to the Biomarkers of Periodontitis Progression: Are We There Yet?

Dr. Flavia Teles, Dept. of Basic & Translational Sciences

HANDS-ON WORKSHOPS

Round Table Discussion Facilitator

Dr. Mark Wolff, Dean

ORAL PRESENTATIONS

DNA Methylation Inhibitor Ameliorates Periodontal Bone Loss

Dr. Manjunatha Benakanakere, Dept. of Periodontics

Keynote Address: CAD/CAM Ceramics—Myths and Reality

Dr. Markus Blatz, Dept. of Preventive & Restorative Sciences

Epigenetic Regulation of Mesenchymal Stem Cell Transplantation Extends Lifespan

Dr. Chider Chen, Dept. of Oral & Maxillofacial Surgery

FOXO1 Activation in Dendritic Cells Controls T-cell Polarization to Regulate Periodontal Disease Susceptibility

Dr. Dana Graves, Dept. of Periodontics

Role of NF- κ B in MSC Expansion during Diabetic Fracture Healing

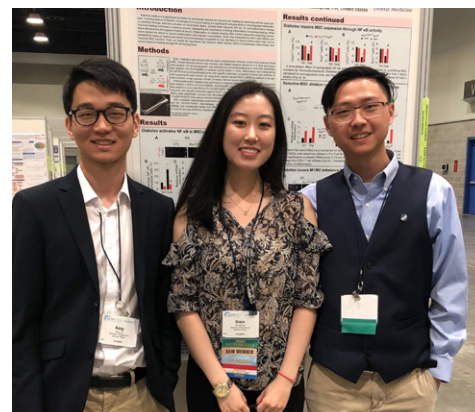
Matt Kralik (D'20)

Dual-Targeting Approach Degrades Biofilm Matrix and Enhances Bacterial Killing

Dr. Zhi Ren, Dept. of Orthodontics & Divs. of Pediatric Dentistry/Community Oral Health

The Role of TLR2 and TLR3 Synergy via MYD88 Dependent Inflammatory Response

Hellen Teixeira (GD'16, GD'19)



POSTER DISCUSSION SESSION

Clinical Application of FOXO1 Inhibitor in Diabetic Minipig Skin Wounds

Dr. Hyeran Helen Jeon, Dept. of Orthodontics

POSTER PRESENTATIONS

Accuracy of 3D-Printed and Milled CAD/CAM Models

Dr. Eva Anadioti, Dept. of Preventive & Restorative Sciences

Epithelial Stem-like Cells in Ameloblastoma Resist to BRAFV600E Inhibitor

Dr. Ting Han Chang (GD'20)

Pro-osteogenic Effects of DPSC-derived Extracellular Vesicles on Jaw Bone-derived MSCs

Dr. James G. Choi (D'14, GD'17, M'17)

Role of PERK in HIV-Associated Neurocognitive Disorders

Grace Chung (D'20)

Nasal Reconstruction with Paramedian Forehead Flap — Case Report

Zachariah Cole (D'17, M'20, GD '23)

Alcohol: A Protective Factor for Late Implant Failure?

Dr. John Coburn (D'20)

Determining the Immunologic Profile of Primary HSV-1 Infections in Humans
Sahil Gandotra (D'20)

Effect of Saliva on Cross-kingdom Biofilm Development and Acidogenicity
Dr. Geelsu Hwang, Dept. of Preventive & Restorative Sciences

Diabetes-induced NF- κ B Dysregulation in MSCs Exacerbates Inflammation during Osseous Healing
Dr. Kang Ko (D'15, GD' 20, DSCD' 20)

Mechanical Properties of a Novel PVM/MA Incorporated Acrylic Resin
Dr. Christopher Lai (D'19)

Radiographic Identification of Confined Trabecular Bone Lesions: A Systematic Review
Dr. Mel Mupparapu, Dept. of Oral Medicine

Inhibition of Human Mast Cell MRGPRX2 Signaling Involved in Chronic Urticaria and Periodontitis
Iryna Mysnyk (D'20)

Regulation of MRGPRX2/Gaq Interaction in Mast Cells by GRK2-RH Domain
Moor Q. Omar (D'20)

New Attachment Outcomes Differ after Demineralization of Dentin, Cementum or Pulpal Surfaces
Dr. Alan Polson, Dept. of Periodontics

Bacterial-fungal Consortia in Saliva Modulate Biofilm Architecture under Cariogenic Environment
Dr. Áurea Simon-Soro, Dept. of Orthodontics & Divs. of Pediatric Dentistry/Community Oral Health

Dynamics of Bacterial-fungal Interactions in Oral Biofilms
Sherry Wan (D'20)

Five-year Clinical Performance of Two Giomer Resin Materials in Class-I Restorations
Dr. Jacqueline Yip (D'19)

Cytolethal Distending Toxin Intoxication of Macrophages is Dependent upon Cellugyrin
Milo Jinho Yu (D'20)

Wisdom Tooth: A Potential Tooth for Autotransplanting into Periodontitis Defects
Dr. Da-Yo Yuh (GD'19)

STUDENT RESEARCH RECOGNIZED

Among the postgraduate and predoctoral candidates from Penn Dental Medicine presenting at the IADR General Session, three were awarded recognition for their research — Dr. Aurea Simon-Soro with the IADR Women in Science Award for Distinguished Research, Matt Kralik (D'20) with the IADR MTG Outstanding Young Investigator Award for Student Research, and Grace Chung (D'20), who placed in the inaugural AADR National Student Research Group 411 Rapid Research Competition.

The Women in Science Award recognizes excellence in oral/dental/craniofacial research by a female researcher, given for a single research paper published in the previous year by the nominee, who must be a first or senior author. Dr. Simon-Soro received the award for the paper titled "Combined analysis of the salivary microbiome and host defense peptides predicts dental disease," *Sci Rep.* 2018 Jan 24; 8(1):1484.

Presently in the Biomedical Postdoctoral Program at Penn, Dr. Simon-Soro is working in the research lab of Penn Dental Medicine's Dr. Hyun (Michel) Koo, Professor, Department of Orthodontics and Divisions of Community Oral Health and Pediatric Dentistry, where she is applying her skills in bioinformatics, microbiome analysis, and biofilm imaging. She is researching the interaction of oral fungi



LEFT: Dr. Aurea Simon-Soro, recipient of the IADR Women in Science Award for Distinguished Research, with Dean Mark Wolff and Dr. Michel Koo, who leads the lab where Simon-Soro is conducting research.



RIGHT: Students Grace Chung (D'20) and Matt Kralik (D'20) were recognized for their research with Chung placing in the 411 Rapid Research Competition and Kralik receiving the IADR Mineralized Tissue Group Outstanding Young Investigator Award.

and bacteria in saliva related to environmental factors, such as sugar intake, and how it affects the development of virulent dental plaque in early childhood caries.

Matt Kralik (D'20) was recognized by the IADR Mineralized Tissue Group with the Outstanding Young Investigator Award for Student Research. His project was the *Role of NF- κ B in MSC Expansion during Diabetic Fracture Healing*, which he gave as an oral presentation at the meeting, detailing work done on bone mesenchymal stem cells with periodontics resident Dr. Kang Ko (D'15, GD' 20, DSCD' 20)

and Dr. Dana Graves, Professor, Department of Periodontics.

As part of the 411 Rapid Research Competition, Grace Chung (D'20) was one of seven students nationwide selected to compete in the basic science category, taking third place for the study titled *Role of PERK in HIV-Associated Neurocognitive Disorders*, for which she made a poster presentation. She completed this study under faculty preceptor Dr. Kelly Jordan-Sciutto, Professor, Dept. of Basic & Translational Sciences.