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

**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-κB 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)

**HANDS-ON WORKSHOPS**

- Round Table Discussion Facilitator
  Dr. Mark Wolff, Dean

**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)
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. Aurea Simon-Soro, Dept. of Orthodontics & Divs. of Pediatric Dentistry/Community Oral Health

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-κB 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

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 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-κB 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.