

RESEARCH SPOTLIGHT

TRANSLATING SCIENCE TO PRACTICE

Research Day 2020 Awards

Despite being held virtually this year, Penn Dental Medicine's Research Day 2020, May 14, brought together faculty and students to share their research activities and spotlight the depth of the School's research enterprise. In addition to faculty presentations and invited speakers, this year's event featured 86 poster presentations by both students and junior investigators from which the following awards were presented.

Penn Dental Medicine AADR Travel Awards

The AADR Travel Award program was launched by Penn Dental Medicine in 2014 to advance student/junior investigator research, providing funds toward their travel to the annual AADR meeting where awardees have the opportunity to present their work. Recipients are selected by a faculty panel of judges and will attend and present their research at the 2021 AADR/CADR General Session & Exhibition.

DMD STUDENT AWARDEES

AWARDEE/PROJECT	FACULTY ADVISOR
Brittany N. Link (D'21): <i>The Role of Prx1+ Oral Fibroblasts in Expediting Gingival Wound Healing</i>	Drs. Dana T. Graves and Kang I. Ko, Dept. of Periodontics
Victoria T. Hu (D'22): <i>Grain size, Flexural Strength, Light Transmittance and Reflectance of Monolithic Zirconia under Different Sintering Temperatures</i>	Dr. Francis K. Mante, Div. of Restorative Dentistry
Kevin K. Lou (D'22): <i>Accelerated Cutaneous Wound Healing through Exosome/ IP-10 Delivery Vehicle in Murine Animal Model</i>	Drs. Anh D. Le and Chider Chen, Dept. of Oral and Maxillofacial Surgery/Pharmacology

JUNIOR INVESTIGATOR AWARDEES

AWARDEE/PROJECT	DEPARTMENT/LAB
Aurea Simon-Soro, DMD, MSc, PhD: <i>Impact of a repurposed drug, thonzonium bromide, on host microbiome across the gastrointestinal tract</i>	Dr. Hyun (Michel) Koo, Dept. of Orthodontics and Divs. of Community Oral Health, Pediatrics
Chenshuang Li, DDS, PhD: <i>From Skin Biopsy to Musculoskeletal Tissue Regeneration - a Single Protein Reprogramming Approach</i>	Dept. of Orthodontics
Jong-Hyung Lim, PhD: <i>FPR2 deficiency attenuates experimental autoimmune encephalomyelitis (EAE) by modulating dendritic cell function and inhibiting Th17 cell development</i>	Dr. George Hajishengallis, Dept. of Basic & Translational Sciences

GRADUATE DENTAL EDUCATION STUDENT AWARDEES

AWARDEE/PROJECT	FACULTY ADVISOR
Lily P. See (GD'23): <i>Behavioral Pain Assessment in a Dental Pulp Injury Model</i>	Dr. Claire Mitchell, Dept. of Basic & Translational Sciences
Erin C. Mooney (GD'21): <i>Quercetin diminishes periodontal inflammation and restores microbial dysbiosis</i>	Dr. Esra Sahingur, Dept. of Periodontics
Alaa Mounimah (GD'21): <i>18F-FDG-PET/CT in Radiation Therapy-Induced Parotid Gland Inflammation</i>	Drs. Jon Korostoff and Yu Cheng Chang, Dept. of Periodontics

AADR Student Research Day Award

The American Association for Dental Research (AADR) Student Research Day Award, funded by the AADR, is designed to recognize the best presentation at an academic institution's research day competition. The award consists of a complimentary meeting registration and a monetary award to assist with travel to the March 2021 AADR/CADR General Session & Exhibition in Boston.

AWARDEE/PROJECT	FACULTY ADVISOR
Megan J. Chen (D'22): <i>Characterizing The Binding of EGFF-retargeted Oncolytic Herpes Simplex Virus Resistant to Virus Neutralizing Monoclonal Antibodies</i>	Dr. Gary H. Cohen, Dept. of Basic & Translational Sciences

Joseph and Josephine Rabinowitz Award for Excellence in Research

The Joseph and Josephine Rabinowitz Award for Excellence in Research was designed to help Penn Dental Medicine faculty undertake pilot projects that will enable them to successfully apply for extramural sources of funding. Designed through the lens of a researcher, this ongoing grant evaluates research proposals for their scholarly merit, creativity and innovation; the significance of the research in advancing scientific knowledge; the prospects for future extramural funding; the availability of alternate funding sources; and in the case of junior faculty, evidence that the applicant will be working as an independent investigator and forwarding of the School's research objectives. Launched in 2002, this award was endowed through the generosity of the late Dr. Joseph "Jose" Rabinowitz, an active member of the School's biochemistry faculty for 29 years, and his wife, the late Dr. Josephine "Josy," a fellow Penn alum.

2020 RABINOWITZ AWARD RECIPIENTS

Cagla Akay-Espinoza, MD

Research Assistant Professor, Department of Basic & Translational Sciences

Both periodontal disease and Alzheimer's disease are highly prevalent in aging populations. Initiated by oral microbiome, periodontal disease not only causes alveolar bone destruction via local inflammation, but is also a source of systemic inflammation in untreated cases, which is a significant contributor to Alzheimer's disease pathogenesis. However, a causal relationship between these diseases, both of which are multifactorial, has not been established to date. We will develop a model of periodontal disease in an Alzheimer's disease mouse model to test our hypothesis that systemic inflammation underlies a causal relationship between periodontal disease and Alzheimer's disease. This approach will be critical to understand the mechanistic link between the two diseases, identify genetic drivers at play, and develop predictive and diagnostic biomarkers, screening methods, and novel therapeutic approaches. Importantly, the pathogenesis underlying Alzheimer's disease is predicted to initiate decades before the emergence of first symptoms and identifying presymptomatic high-risk individuals, such as those with unresolved periodontal disease, would significantly contribute to successful outcomes with early intervention.

Rahul Singh, PhD

Postdoctoral Fellow, Dept. of Basic & Translational Sciences

This project aims to prevent dental plaque/biofilm formation and degradation by targeting virulent factors that are associated with cell surface integrity of the causative microbes, without affecting the overall microbial homeostasis in the oral cavity. Based on initial findings, this proposal will investigate novel molecular mechanisms responsible for anti-biofilm activity of the unexplored enzyme lipase and its development as a protein drug target. Lipase enzyme produced in antibiotic-free lettuce plants will be evaluated and formulated into the chewing gum for translational applications.

Eugene Ko, DDS

Clinical Assistant Professor, Dept. of Oral Medicine

Through a collaboration with Penn Dental Medicine's Department of Oral Medicine and the Wharton Business School, this study aims to assess a novel way to capture the behaviors, psychology, and pain symptoms of Burning Mouth Syndrome patients. Using a smartphone "app" to capture real-time data over an 8-week period, we aim to characterize the pain symptoms more accurately than relying on patient memory, and also to elucidate previously unknown environmental and behavioral factors that might influence the disease course. The Rabinowitz grant will allow us to collect this crucial pilot data to be used for a future interventional study on nonpharmacological management of this patient population.

SCADA Award

Dentsply Sirona and the AADR have joined forces to co-sponsor the Student Competition for Advancing Dental Research and its Application (SCADA), formerly known as the Student Clinicians of the American Dental Association. The SCADA program advances their collective commitment to empower the next generation of dental leaders.

AWARDEE/PROJECT

Brittany N. Link (D'21): *The Role of Prx1+ Oral Fibroblasts in Expediting Gingival Wound Healing*

FACULTY ADVISOR

Drs. Dana T. Graves and Kang I. Ko,
Dept. of Periodontics

