

RESEARCH SPOTLIGHT

TRANSLATING SCIENCE TO PRACTICE

2022 Research Awards

Penn Dental Medicine spotlighted the depth of the School's research activities with two days of programming this spring – presenting the inaugural Advances in Clinical Care and Education (ACCE) Day and Research Day 2022 on May 12 and 13, respectively. In addition to faculty presentations and invited speakers both days, there were 94 research poster presentations by students and junior investigators on ACCE Day and 71 on Research Day from which the following awards were presented.

AADO CR Student Research Day Award

The AADO CR Student Research Day Award, funded by the AADO CR, 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 of \$500 to assist with travel to the 2023 AADO CR/CADR Annual Meeting & Exhibition in Portland, OR in March. The Awardees will also be highlighted in the General Session & Exhibition Program Book and AADO CR website.

AWARDEE/PROJECT

Sara Steinbaum (D'22):
Patient Attitudes Regarding the Role of the Dentist in Vaccination for Coronavirus Disease 2019 (COVID-19) and Human Papillomavirus (HPV)

FACULTY ADVISOR

Drs. Patricia Corby, Katherine France, and Roopali Kulkarni, Dept. of Oral Medicine

Student Competition for Advancing Dental Research and its Application Award

Dentsply Sirona and the American Association for Dental, Oral, Craniofacial Research (AADO CR) have joined forces to co-sponsor the Student Competition for Advancing Dental Research and its Application, formerly known as the Student Clinicians of the American Dental Association (SCADA).

AWARDEE/PROJECT

Xuejing Xu (D'24): *In-vitro Strength Degradation of In-house Two-step Sintered High-strength 3-Yttria-Partially Stabilized Zirconia*

FACULTY ADVISOR

Dr. Yu Zhang, Div. of Restorative Dentistry



Penn Dental Medicine AADOCR Travel Award

The AADOCR 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 AADOCR meeting where awardees have the opportunity to present their work. A panel of faculty judges selected recipients at Penn Dental Medicine's Research Day and ACCE Day 2022. The following awardees will attend and present their research at the 2023 AADOCR/CADR Annual Meeting & Exhibition in Portland, OR, in March 2023.

DMD STUDENT AWARDEES

AWARDEE/PROJECT	FACULTY ADVISOR
Julia Jeong (D'23): <i>Current Understanding of Sensory Hypersensitivity Relationship with Oral Hygiene in Children with Autism Spectrum Disorder</i>	Drs. Patricia Corby and Katherine France and Michelle Shuster, Dept. of Oral Medicine
Yilan Miao (D'23): <i>Effect of Dietary Sugars on Cross-Kingdom Biofilm Interactions in Saliva and Biofilm Formation</i>	Dr. Hyun (Michel) Koo, Dept. of Orthodontics, Divs. of Community Oral Health and Pediatric Dentistry
Anwar Radwan (D'24): <i>Damage Tolerance of Novel Two-Step Sintered High-Translucency Zirconia</i>	Drs. Mark Wolff and Yu Zhang, Div. of Restorative Dentistry
Akhil Ramani (D'24): <i>Effect of Experimental Biomimetic Primer on Dentin Bond Strength Under Wet Conditions</i>	Drs. Markus Blatz and Fusun Ozer, Div. of Restorative Dentistry
Benjamin Shelling (D'24): <i>Fusobacterium nucleatum Triggers Senescence Phenotype in Gingival Keratinocytes</i>	Dr. Esra Sahingur, Dept. of Periodontics

JUNIOR INVESTIGATOR AWARDEES

AWARDEE/PROJECT	FACULTY ADVISOR
Alaa Babeer (GD'22): <i>A New Clinical Use of an FDA Approved Catalytic Iron Oxide Nanoparticles for Endodontic Treatment</i>	Dr. Hyun (Michel) Koo, Dept. of Orthodontics, Divs. of Community Oral Health and Pediatric Dentistry
Smruti Nair (GD'24) and Yuwei (Amy) Guo (GD'23): <i>Debulking SARS-COV-2 and Influenza virus strains by viral trap proteins in chewing gums to decrease infection and transmission</i>	Drs. Henry Daniell and Robert Ricciardi, Dept. of Basic & Translational Sciences
Gundappa Saha: <i>Deciphering Functional Underpinnings of IL-22 in Periodontal Health</i>	Dr. George Hajishengallis, Dept. of Basic & Translational Sciences

GRADUATE DENTAL EDUCATION STUDENT AWARDEES

AWARDEE/PROJECT	FACULTY ADVISOR
Abdulrahman A. Almalki (GD'22): <i>Full Mouth Rehabilitation with Palatal Augmentation Prosthesis (Pap) for a Head & Neck Cancer Patient Underwent Glossectomy and Radiotherapy</i>	Dr. Myung (Brian) Chang, Dept. of Oral & Maxillofacial Surgery/ Pharmacology, Div. of Restorative Dentistry
Zhaoxu Chen: <i>SCA1+ oral fibroblasts are the major source of CCL2 but not CXCL1 and CCL7</i>	Dr. Kang Ko, Dept. of Periodontics
Andres Davila (GD'23): <i>Mucous Membrane Pemphigoid Management through Telemedicine During the Covid-19 Pandemic (Co-Author: Eman Alamodi, GD'24)</i>	Drs. Roopali Kulkarni, Thomas P. Sollecito, Eric T. Stoopler and Takako Tanaka, Dept. of Oral Medicine; Dr. Michael B. Salin, Innovative Implant and Oral Surgery
Noor Kutkut (GD'22): <i>Complete Digital Workflow: Fully Guided Implant Surgery and Immediate Load for Partially Edentulous Maxilla</i>	Dept. of Preventive and Restorative Sciences
Bradley Lander (GD'23): <i>Retrospective Analysis of Factors Related to the Clinical Outcome of Alveolar Ridge Augmentation Using Guided Bone Regeneration</i>	Drs. Yu-Cheng Chang and Rodrigo Neiva, Dept. of Periodontics
Sonaj Vardhaman: <i>Controlled Damaged Tolerance of Various Classes of CAD/CAM Dental Ceramics</i>	Dept. of Preventive and Restorative Sciences

Independent Research Award

AWARDEE/PROJECT

Brenda Yeung (D'23): *Characterization of Temporomandibular Joint (TMJ) Findings in an Orthodontic Cohort* (Co Author: Zaara A. Baig, D'22, GR'22)

FACULTY ADVISOR

Dr. Adeyinka Dayo, Dept. of Oral Medicine

Excellence in Community Oral Health Scholarship Award

AWARDEE/PROJECT

Julia (Minjung) Kim (D'24): *I Am Enough: A Campaign to Empower Marginalized Women of Philadelphia Experiencing Period Poverty*

FACULTY ADVISOR

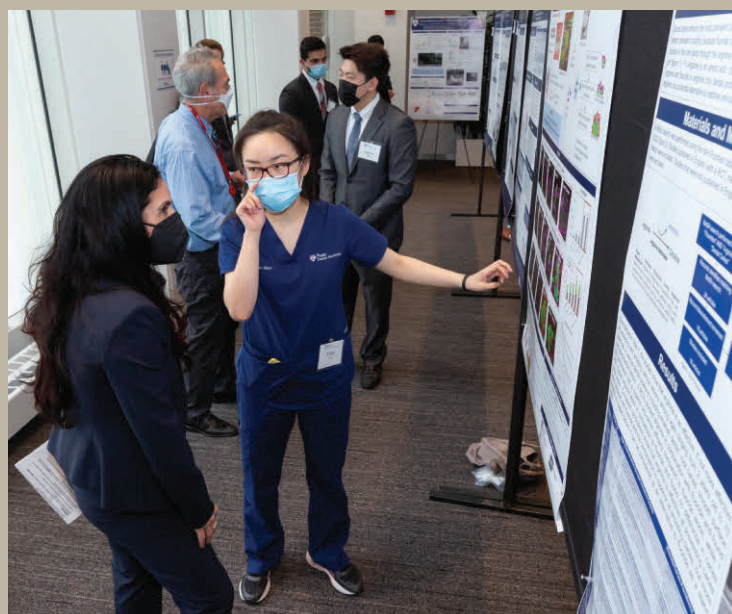
Dr. Joan I. Gluch, Div. of Community Oral Health

Hilary Wong (D'24): *Educators for Education: Empowering Adolescent Juvenile Philadelphia Youth through Job Readiness, Health Education, and Career Development*

Dr. Joan I. Gluch, Div. of Community Oral Health (Community Preceptor: Anthony Singleton, WorkReady, Educators for Education)

Rachel S. Hoagburg (D'22): *Philly Phases: A Closer Look at Craniofacial Care in Dentistry*

Drs. Kenneth Kent and Joan I. Gluch, Dept. of Preventive & Restorative Sciences, Div. of Community Oral Health



Excellence in Penn Dental Medicine Honors Award

AWARDEE/PROJECT

Brenna Harrington (D'22) and Tahina Mukit (D'22): *Clinical Case Report of Adult Lingual Frenectomy with Er: YAG Laser*

FACULTY ADVISOR

Dr. Yu-Cheng Chang, Dept. of Periodontics

Sanghamitra Suman (D'22): *A Rare Case of Transmigratory Maxillary Canine Crossing the Mid-Maxillary Suture in an Orthodontic Patient*

Dr. Mel Mupparapu, Dept. of Oral Medicine

Sage M. Kelner (D'23): *Nutritional Sciences Honors Informational Newsletters*

Dr. Kathleen Boesze-Battaglia, Dept. of Basic & Translational Sciences and Matthew Whipple, Div. of Community Oral Health

Acadental Scholarship Fund Award

The Acadental Scholarship Fund at Penn Dental Medicine was established to provide financial support to second-, third- or fourth-year dental students in the School with consideration for students who present accomplishment in innovation and entrepreneurship for better dental education. The scholarship was awarded through the inaugural ACCE Day program last May, which recognized scholarship in community service, educational initiatives, and advances in clinical care.

AWARDEE/PROJECT

Julie Berenblum (D'23) and Jenna Panek (D'23): *Parent Receptiveness to Nutrition and Systemic Health Advice from Dental Professionals*

FACULTY ADVISOR

Deanne Walleart, Dr. Joan I. Gluch, and Tatyana Straus, Div. of Community Oral Health



Joseph and Josephine Rabinowitz Award for Research Excellence

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.

2022 RABINOWITZ AWARD RECIPIENTS

Flavia Teles, DDS, MS, DMSc

Associate Professor, Dept. of Basic & Translational Sciences
Integrating Omics-Data via Deep Learning to Predict Periodontitis Progression

Periodontitis is the most common cause of tooth loss among U.S. adults. Further, it increases the risk for systemic conditions such as diabetes, cardiovascular, and respiratory diseases. Thus, early identification of periodontitis and of high-risk individuals is critical. However, there are no practical means of doing so. In this project, metagenomic sequencing will be used to determine the subgingival microbiome of patients with severe periodontitis presenting advanced disease progression. Then, artificial intelligence approaches will be employed to devise biological disease classifications and predictive models of clinical outcomes by integrating existing longitudinal immunological, clinical, and demographic data with the microbiological information. Results from this project will support future NIH grant applications aimed at understanding, identifying, and predicting high risk for periodontitis and developing more precise and efficient approaches for diagnosis, treatment, and prevention.



Yuan Liu, DDS, MS

Research Associate, Div. of Restorative Dentistry
Association between Early Candida Infection (Oral Thrush) and Severe Early Childhood Caries

Severe early childhood caries (S-ECC) is a major public health problem characterized by dysbiotic oral microbial burden leading to a persistent and virulent biofilm on the teeth of toddlers that causes rampant tooth decay as well as hurts general health. Emerging clinical evidence has spotlighted the potential role of *Candida albicans* in S-ECC. Furthermore, our retrospective study revealed that oral thrush (oropharyngeal candidiasis or OPC) detection in toddlers less than 12 months of age was strongly associated with the development of dental caries. However, only cross-sectional human studies have been performed thus far. Longitudinal studies are warranted to better assess the causal association between OPC and S-ECC in toddlers to determine the fungal role in caries. To address this, the proposed research will be focused on conducting a two-year prospective longitudinal study to (1) investigate the association between early OPC and the onset and severity of S-ECC in a cohort of infants, and (2) evaluate the influence of OPC on the functional plaque microbiome of infants.

ABOVE: Dr. Dana Graves, Dr. Esra Sahingur (left-right), and Dr. Kathleen Boesze-Battaglia (far right) with the 2022 Rabinowitz Award winners Dr. Yuan Lin and Dr. Flavia Teles and Lois Rabinowitz Lamond (center).