



Summer 5-2023

Insight - Summer 2023

Dugoni School of Dentistry

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Summer 2023

Research and Scholarship

Welcome to the latest issue of *Insight*, a newsletter celebrating the accomplishments of our community of scholars. We aim to spotlight insights from people at the Dugoni School working in all areas of scholarship, including clinical or biomedical research, the scholarship of teaching and learning, improvement of the health care system, and professional partnerships that advance the field.

OKU-Sutro Excellence Day Showcases Clinical Cases, Research and Community Service

Examples of excellence in clinical cases, research and community service at the Arthur A. Dugoni School of Dentistry were on full display during the OKU-Sutro Excellence Day celebration held May 3, 2023 on the San Francisco Campus.



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Research and Scholarship

Dr. Karen Schulze, chair of the OKU-Sutro Excellence Day Committee, opened the event with a greeting to attendees, followed by welcome remarks from Dean Nader Nadershahi.

“Excellence Day is a very special event,” said Dr. Schulze. “Not only does it give students the opportunity to show off their work, but it also allows them to encourage and inspire one another to deliver the best possible outcomes for their patients. Watching our students grow into skilled and compassionate dentists and health care professionals is incredibly rewarding.”



Keynote guest speaker Dr. Douglas Terry presented “Treating Esthetic Challenges using the Adhesive Design Concept.” Dr. Terry is an adjunct professor in the department of restorative sciences at the University of Alabama at Birmingham, and Professor Emeritus in the department of conservative dentistry and endodontics at the V.S. Dental College and Hospital, Rajiv Gandhi University of Health Sciences in Bangalore, India.

Activities then spanned the clinical and lobby areas on the second floor where students and residents set up displays and posters. Faculty judges reviewed the more than 80 projects on display and discussed them with the presenting students and residents. Clinical cases included implant dentistry, removable prosthodontics, restorative, orthodontics, community health, research, dental hygiene and more. In addition to presentations from dental students and residents, the event included presentations from students in the Audiology program in Pacific’s School of Health Sciences.

Students also discussed the results of their Personalized Instruction Program (PIP) projects completed with guidance from their faculty advisors.

For clinical cases, numerous patients were on hand to describe their experiences in the clinics and to showcase the work of the dental students and residents who treated them.

“The Excellence Day event was such a wonderful experience to see the outstanding work students are doing at the Dugoni School,” said Philip Stahl, DDS ’23. “Seeing amazing work from clinical cases to community service projects to groundbreaking research just made me proud to be a student here! Excellence Day was

seamlessly organized, and this allowed for the students' work to shine through. One of the best events I've experienced!"

Awards will be presented to students during an upcoming Brown Bag meeting with Dean Nadershahi and at the Alumni/Graduate Banquet during Commencement Weekend. Projects and presentations will be posted to the Excellence Day website at a later date.

Read more and view photos from Excellence Day at <https://is.gd/tecere>

Research in the Spotlight

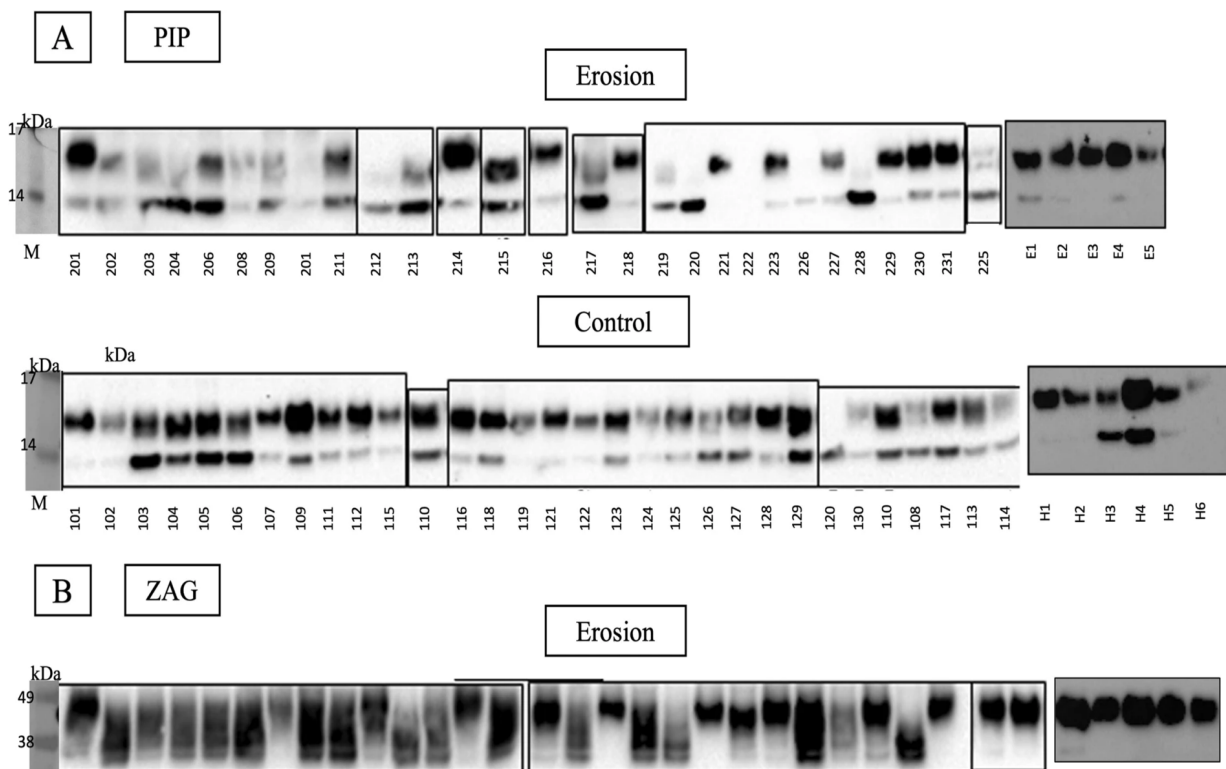
Novel bacterial proteolytic and metabolic activity associated with dental erosion-induced oral dysbiosis

What is it?

A look at whether there are differences between bacterial activity in healthy mouths and in those with dental decay.

What problem does it aim to solve?

Dental caries is a significant health issue and this work attempted to look at the factors that can create conditions favorable to caries-causing bacteria.



Immunoblots for (A) PIP and (B) ZAG proteins identified in saliva samples (E = erosion, H = healthy controls, M = protein marker)

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Research and Scholarship

How does it work?

The goal of this study was to assess “whether the metabolomics of individuals with dental erosion was different from healthy individuals. Since oral bacteria can degrade salivary proteins by protease and peptidase activity, and produce organic acids from amino acid fermentation, their role in dental erosion was investigated using a multi-omics approach.” The study included the analysis of proteins found in saliva using mass spectrometry, genetic sequencing of oral bacteria, and analysis of salivary metabolites using nuclear magnetic resonance spectrometry.

What are the real-world implications?

Two particular proteins — prolactin inducible protein (PIP) and zinc-alpha-2-glycoprotein (ZAG) — were associated with dental erosion, and dental erosion was also associated with lower bacterial diversity. The genetic sequencing data showed that there were increased numbers of acid-tolerant bacteria among those in the dental erosion group, and that these bacteria were more active in this group.

What are the next steps?

There are many areas that warrant future research. Further studies should include a larger number of participants; include information on dietary habits; and focus on the possible mechanism behind the association between increased salivary proteolytic (protein breakdown) activity and dental caries.

Source

“Novel bacterial proteolytic and metabolic activity associated with dental erosion-induced oral dysbiosis“, *Microbiome* volume 11, Article number: 69 (2023) <https://microbiomejournal.biomedcentral.com/articles/10.1186/s40168-023-01514-0> <https://is.gd/elavuk>

Authors

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Guy H. Carpenter, Centre for Host Microbiome Interactions, Faculty of Dentistry, Oral and Craniofacial Sciences, King's College London

Recent Publications

Congratulations to Dugoni School faculty, staff, student and resident researchers involved in the following research publications in the last few months.

Cleaver, L.M., Carda-Diéguez, M., Moazzez, R., Carpenter, G.H.

Novel bacterial proteolytic and metabolic activity associated with dental erosion-induced oral dysbiosis (2023) *Microbiome*, 11 (1), art. no. 69.

[View >](#) | DOI: 10.1186/s40168-023-01514-0

Khoshkhou, H., Hasheminasab, M., Goudarzi Pour, D., Jamali, R., Morshedzadeh Tehrani, G., Moslemi, N.

Multiple maxillary periodontal abscesses as a manifestation of post-coronavirus disease 2019 mucormycosis: a case report

(2023) *Journal of Medical Case Reports*, 17 (1), art. no. 74.

[View >](#) | DOI: 10.1186/s13256-023-03792-6

Oza, S., Lai, G., Peters, O.A., Chen, J., Karabucak, B., Scott, R., Galicia, J.C.

The Influence of Cone Beam Computed Tomography-Derived 3D-Printed Models on Endodontic Microsurgical Treatment Planning and Confidence of the Operator

(2023) *Journal of Endodontics*, 49 (5), pp. 521-527.e2.

[View >](#) | DOI: 10.1016/j.joen.2023.02.004

Peres Lima, F.G.G., Rios, L.G.C., Bianchi, J., Gonçalves, J.R., Paranhos, L.R., Vieira, W.A., Zanetta-Barbosa, D.

Complications of total temporomandibular joint replacement: a systematic review and meta-analysis (2023) *International Journal of Oral and Maxillofacial Surgery*, 52 (5), pp. 584-594.

[View >](#) | DOI: 10.1016/j.ijom.2022.10.009

Ono, T., Pangrazio-Kulbersh, V., Perillo, L., Artese, F., Czochrowska, E., Darendeliler, M.A., Dugoni, S., Bajaire, W.E.F., Liou, E., Park, J.H., Rice, D., Zaher, A., Athanasiou, A.E., Graber, L.W., Vaid, N.R.

World Federation of Orthodontists guidelines for postgraduate orthodontic education

(2023) *Journal of the World Federation of Orthodontists*, 12 (2), pp. 41-49.

[View >](#) | DOI: 10.1016/j.ejwf.2023.03.002

Khan, J., Singer, S.R., Young, A., Tanaiutchawoot, N., Kalladka, M., Mupparapu, M.

Pathogenesis and Differential Diagnosis of Temporomandibular Joint Disorders

(2023) *Dental Clinics of North America*, 67 (2), pp. 259-280.

[View >](#) | DOI: 10.1016/j.cden.2022.10.001

Zeitlin, B.D., Sathak, N.D.

Attitudes of an international student cohort to the Quizlet study system employed in an advanced clinical health care review course

(2023) *Education and Information Technologies*, 28 (4), pp. 3833-3857.

[View >](#) | DOI: 10.1007/s10639-022-11371-3

Said-Sadier, N., Sayegh, B., Farah, R., Abbas, L.A., Dweik, R., Tang, N., Ojcius, D.M.

Association between Periodontal Disease and Cognitive Impairment in Adults

(2023) *International Journal of Environmental Research and Public Health*, 20 (6), art. no. 4707.

[View >](#) | DOI: 10.3390/ijerph20064707

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Research and Scholarship

Coutinho Almeida-da-Silva, C.L., Cabido, L.F., Chin, W.-C., Wang, G., Ojcius, D.M., Li, C.

Interactions between silica and titanium nanoparticles and oral and gastrointestinal epithelia: Consequences for inflammatory diseases and cancer

(2023) *Heliyon*, 9 (3), art. no. e14022.

[View >](#) | DOI: 10.1016/j.heliyon.2023.e14022

Banečková, M., Cox, D.

Top 10 Basaloid Neoplasms of the Sinonasal Tract

(2023) *Head and Neck Pathology*, 17 (1), pp. 16-32.

[View >](#) | DOI: 10.1007/s12105-022-01508-8

Chainani-Wu, N., Gopal-Murthy, V., Wu, A., Marinkovich, M.P.

Localized CO₂ laser treatment of a recalcitrant oral ulceration in pemphigus vulgaris

(2023) *Clinical advances in periodontics*, 13 (1), pp. 38-41.

[View >](#) | DOI: 10.1002/cap.10210

Fears, N.E., Sherrod, G.M., Templin, T.N., Bugnariu, N.L., Patterson, R.M., Miller, H.L.

Community-based postural control assessment in autistic individuals indicates a similar but delayed trajectory compared to neurotypical individuals

(2023) *Autism Research*, 16 (3), pp. 543-557.

[View >](#) | DOI: 10.1002/aur.2889

Contact *Insight*

Have a suggestion for the next issue of *Insight*? Contact Dr. David Ojcius, Assistant Dean for Research and Co-Chair of the Department of Biomedical Sciences, for editorial suggestions or to learn more about how to get involved in research at the Dugoni School. Email: dojcius@pacific.edu