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Dugoni School of Dentistry

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Welcome to the fall 2019 issue of *Insight*, a quarterly 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.
Foreign Materials in Gingival Lesions

What is it?
Research on certain persistent gingival (gum) lesions.

What problem does it aim to solve?
Some patients have lesions on their gums that don’t improve after periodontal treatment and careful oral hygiene practices. This research aimed to understand why these lesions were appearing and not healing. Because foreign particles were being frequently observed, the researchers focused on this aspect.

How does it work?
Biopsy specimens containing foreign particles submitted to the Dugoni School’s pathology lab were selected and subjected to a battery of imaging and assaying techniques. They were also compared to a set of control specimens in which no particles had been detected. The findings were that most of the lesions were white, and described as plaques. There also tended to be multiple lesions and chronic inflammation present. When the foreign particles in the specimens were analyzed, silica turned out to be the predominant element. Lesions in the study samples were far more likely to have been diagnosed as leukoplakia, or pre-malignant, than those in the control group. The researchers also looked at the in vitro effects of silica on gingival fibroblast cells and found that exposure caused the cells to release higher amounts of inflammatory cytokines.

What are the real-world implications?
Silica is already known to cause harmful effects in the human body; it seems to be causing inflammatory effects — and lesions — in people’s mouths as well. Silica is prevalent in dental materials and over-the-counter oral hygiene products, which is likely how these particles are ending up in mouths.

What are the next steps?
More research needs to be done. In the meantime, oral health professionals should be mindful of the risks from these particles in their practice and when recommending oral healthcare products and treatments.

Source
Foreign Materials in Gingival Lesions (cont’d)

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On the Slab in the Lab

The lab assistant in the department of endodontics (Scott Davis), the lab manager (Harmony Matshik Dakafay), and other members of the lab room have managed to get the scanning electron microscope working again. The microscope had been out of commission for some time, but it is now back in working order and is set up with the data computer that accompanies it. The device for sputter coating is now ready to go as well. Scott and other assistants in the lab room are here to support faculty and undergraduate and postgraduate students with research projects.

Scott Davis, Adria Frazier, Harmony Matshik Dakafay, and David Vang next to the scanning electron microscope.
NOTEWORTHY PUBLICATIONS

Congratulations to Dugoni School faculty, staff, student and resident researchers involved in the following research publications within the last three months as sourced by Scopus, the abstract and citation database of peer-reviewed literature. Visit the abstract links to learn more.

Sun, H.-H.B., Antoine, J., Vu, G., Park, C.M.


Hu, L., Zhou, M., Young, A., Zhao, W., Yan, Z.


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Contact *Insight*: Have comments or suggestions on this or future issues of *Insight?* Contact Dr. David Ojcius, Assistant Dean for Research and Chair of the Department of Biomedical Sciences, to share your thoughts or to learn more about how to get involved in research at the Dugoni School. Email: dojcius@pacific.edu