

Houston Center for Biomaterials and Biomimetics

EVERY PATIENT, EVERY DENTIST, EVERY DAY ...



Heart transplant pioneer Denton A. Cooley, MD (left) is pictured with Houston Center for Biomaterials and Biomimetics Director Rade D. Paravina, DDS, PhD, the first holder of the Ralph C. Cooley, DDS, Distinguished Professorship in Biomaterials. The world-renowned surgeon created the endowment in memory of his father, a 1908 graduate of UTHealth School of Dentistry. Dr. Ralph Cooley's portrait appears at center.

DID YOU KNOW?

- Only fifty percent of adult Americans are satisfied with their smiles and how their mouths function.
- Nearly every dental patient encounters a dental material or “restorative” procedure when undergoing treatment, from repair of a minor chip to crowns and even surgery.
- Today, “biomaterials” include not only dental amalgam (silver fillings), porcelain and other common restorative materials, but the replacement and growth of bone, cartilage and even new teeth.
- “Biomimetics” (the mimicking or emulation of nature) involves not only the shape and color of teeth and other parts of the mouth and face, but also advanced technologies, such as digital impressions and 3D printing.

A CENTER OF EXCELLENCE

UTHealth School of Dentistry has created new, state-of-the-art laboratories in support of the Houston Center for Biomaterials and Biomimetics (HCBB) and its research. The center's goals are to advance the restoration and maintenance of patients' smiles and function, with specialized research in:

- **Oral Biomaterials:** including mechanical and physical properties.
- **Clinical Technology:** including CAD/CAM, chairside technologies, and transfer of biomedical technologies to clinical practice.
- **Sustaining Oral Health:** including dental disease susceptibility, prevention and control; minimally invasive care; fluoride-releasing materials; and remineralizing agents.

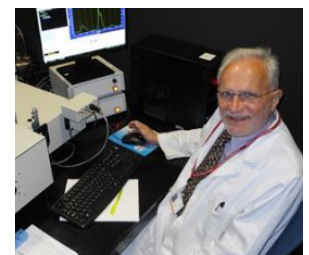
- **Maxillofacial Prosthodontics:** Rehabilitation of patients who have lost parts of their faces or mouths to cancer, trauma, birth defects or deformities.
- **Color and Appearance:** The HCBB is the leader in this field, performing research on fundamental optical properties of hard and soft tissues and dental materials; and developing new clinical and teaching products and instruments.

ACTIVITIES AND ROLE

The HCBB's activities are aligned with the needs of dentists in their delivery of care to patients, ranging from everyday restorative therapy to the most complex cases involving cosmetic and functional corrections, teeth whitening, and rebuilding supporting structures of the face and mouth.

At its core, however, the HCBB is a foundation for School of Dentistry faculty, students, residents and national and international collaborators as they create, study, and transfer new biomaterials, techniques and information for the benefit of dental education, research and patient care. HCBB investigators and clinicians are also widely known for presenting their findings at national and international meetings and forums — increasing visibility and recognition of the center and UTHealth School of Dentistry.

Spectroscopy expert Aleksander Aleksic, PhD, of the Houston Center for Biomaterials and Biomimetics is studying fluorescence of dental materials and natural teeth.





FUNDING AND THE FUTURE

To date, the HCBB's efforts have been funded through grants and the School of Dentistry's own resources. Many projects critical to the education of students and for scholarly growth of faculty have proceeded in spite of being unfunded. However, the center's current growth is limited by lack of significant funding to support critical projects and gain greater competitiveness with other institutions. HCBB seeks to be better positioned to recruit investigators and stimulate research that can lead to other major federal and industry grants.

With additional funding, the HCBB would be uniquely positioned to initiate new collaborative opportunities and expand existing ones. Gift opportunities in support of the HCBB include, but are not limited to:

- Naming the center's facilities.
- Establishing faculty professorships.
- Establishing student scholarships.
- Funding the purchase of equipment and instruments.
- Designated departmental gifts.

CONTACT US

For more information about ways to support the Houston Center for Biomaterials and Biomimetics at UTHealth School of Dentistry, please contact:

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Mission

To advance human health by providing high-quality education, patient care, and research in oral health for Texas, the nation and the world.