The 2014 fiscal year has seen a healthy, steady climb in research at the College of Dentistry.

More faculty and students were involved with research, and the research fever continues to spread further throughout the College.

This past year we had a 30% increase in faculty who published research articles. In addition, six faculty members were appointed to editorial boards of eight different research journals, and two faculty members were appointed as panelists of professional, industry leading dental committees. In the last fiscal year we housed 34 active research grants, the most the College has managed in one year.

Research has also grabbed the attention of our dental students. I am proud to report that our 2014 summer student research program is our largest group of 29 students who are participating on their own research projects with the mentorship of faculty and support of the UT Dental Alumni and the Tennessee Dental Association.

Post-doctoral programs have also nurtured more of their students to conduct distinguished research projects. Six graduates of the pediatric dentistry post-doctoral program have completed research projects with the support of the UT Dental Alumni.

UTHSC faculty and guest scholars have given a diverse array of clinical and laboratory presentations of their research findings and theories. Our faculty and staff continue to make their mark in the industry, both nationally and internationally, pushing the University of Tennessee and the College of Dentistry to the front of research in a wide variety of specialties and professional conferences.

With the support of our university, alumni, and industry we will continue to encourage our students and faculty to pursue new avenues of research that will impact dental public health and lead UT research to the front of the national ranks.
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From left, Dr. Mark Scarbecz, Dr. Connie Mobley, Dr. Franklin Garcia-Godoy, and Dr. Jegdish Babu after Dr. Mobley’s lecture on Childhood Obesity and the oral health implications.

Latoya Legrand, D-2, works on her summer research project on surface hardness and roughness of dentures in the Biomaterials Research lab.
Research Faculty and Staff

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Director, Bioscience Research Center
Professor, Department of Physiology, University of Tennessee Health Science Center
Adjunct Research Professor, Department of Biomedical Engineering, University of Memphis
Senior Clinical Investigator, The Forsyth Institute, Boston, Massachusetts
Adjunct Professor, Department of Conservative Dentistry and Periodontology, University of Munich

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Mustafa Dabbous, M.S., Ph.D.
Professor

Chris Ivanoff, D.D.S.
Associate Professor

Edward Harris, Ph.D.
Professor

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Professor & Director for Stem Cells & Regenerative Therapies

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Assistant Dean of Institutional Affairs

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Professor

David Tipton, D.D.S., Ph.D.
Professor

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Director of TMD/Sleep Medicine

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Grants & Clinical Research Manager

Colette Stewart, R.D.H., B.S., M.S.O.L.
Clinical Research Associate
The summer student research program is well on its way with a record of 26 dental students participating in the program this year. Pre-doctoral students are given a hands-on introduction into dental research with the direction a diverse group of dental faculty who specializes in basic science, clinical science, or translational research. Students will work with their faculty mentor in his/her laboratory or clinic for the duration of eight (8) to ten (10) weeks. After this time, students will be required to present their research data in an oral presentation to their colleagues, faculty, dental alumni and at the Hinman Student Research Symposium. Student researchers will also be encouraged to present their research at the AADR/IADR meeting.

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
<th>Faculty mentors</th>
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<tbody>
<tr>
<td>Ammar Abidi</td>
<td>D-3</td>
<td>Bob Moore, Mustafa Dabbous</td>
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<tr>
<td>Christopher Adkins</td>
<td>D-1</td>
<td>George Huang, Ikable El-Ayachi</td>
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<td>Amy Balestrino</td>
<td>D-2</td>
<td>Daranee Versluis-Tantbirojn, Crisnicas Verissimo, Franklin Garcia-Godoy, Antheunis Versluis</td>
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<td>Molly Bell</td>
<td>D-1</td>
<td>Catherine Stamatacos, Timothy Hottel, Jegdish Babu</td>
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<td>Diane Chavis</td>
<td>D-2</td>
<td>James Ragain, David Umsted, Russell Wicks, Franklin Garcia-Godoy</td>
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<td>Angela Frantz</td>
<td>D-1</td>
<td>Franklin Garcia-Godoy, Timothy Hottel, Yanhui Zhang</td>
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<td>Charles Felts</td>
<td>D-3</td>
<td>Jeffrey Brooks</td>
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<td>Logan Hall</td>
<td>D-1</td>
<td>Jegdish Babu, Franklin Garcia-Godoy</td>
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<tr>
<td>Samanatha Hughey</td>
<td>D-3</td>
<td>James Lane, Paul Gregory, Daranee Tantbirojn, Antheunis Versluis</td>
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<td>Ashley Hutcison</td>
<td>D-2</td>
<td>Kenneth Anderson, Sidney Stein</td>
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<td>Yasaman Kamali</td>
<td>D-3</td>
<td>Franklin Garcia-Godoy, Yanhui Zhang</td>
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<td>Adiha Khan</td>
<td>D-1</td>
<td>George Huang</td>
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<td>Grant King</td>
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<td>Catherine Stamatacos, Timothy Hottel, Jegdish Babu</td>
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<td>Emily Kymer-Davis</td>
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<td>Mojdeh Dehghan, Daranee Versluis-Tantbirojn, Yanhui Zhang, Antheunis Versluis, Franklin Garcia-Godoy</td>
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<td>Carl Leding</td>
<td>D-1</td>
<td>Edwin Thomas</td>
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<td>Latoya Legrand</td>
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<td>Jonathan McNair</td>
<td>D-2</td>
<td>Waletha Wasson, Judith Ross, Mark Scarbecz, Ashanti Braxton</td>
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<td>Kimberly Pollard</td>
<td>D-2</td>
<td>Barry Owens, Jeffrey Phebus, Jegdish Babu</td>
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<td>Creighton Powell</td>
<td>D-1</td>
<td>James Ragain, David Umsted, Russell Wicks, Franklin Garcia-Godoy</td>
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<td>Ryan Roberts</td>
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<td>David Tipton, James Christian</td>
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<td>Chad Slaven</td>
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<td>James Ragain, Barry Owens, Jeffrey Phebus</td>
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<td>Richard Sullivan</td>
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<td>Daranee Tantbirojn, Robert Hatch, Antheunis Versluis</td>
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<td>Emily Toole</td>
<td>D-3</td>
<td>David Clement, Adam Lloyd, Franklin Garcia-Godoy</td>
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<td>Jessica Tucker</td>
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<td>Martin Donaklson, Harry Sharp</td>
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<tr>
<td>Cassandra Worley</td>
<td>D-2</td>
<td>Antheunis Versluis, Daranee Tantbirojn, Crisnicas Verissimo</td>
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<td>Kiarsh Yeganegi</td>
<td>D-3</td>
<td>Mustafa Dabbous, Edwin Thomas</td>
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<tr>
<td>Jahon Zehtaban</td>
<td>D-1</td>
<td>Franklin Garcia-Godoy, Timothy Hottel, Yanhui Zhang</td>
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Creighton Powell, D-1, works with the Novo-Curve in the Biomaterials Research Center on his summer project on flexural strength and dentures.

Angela Frantz, D-1, works in the Bioscience Research Lab on her summer project on the development of fluorescent reporter streptococcus mutans.
Dr. James Ragain is a native East Tennessean. He attended the University of Tennessee-Knoxville earning the Bachelor of Science degree (Summa Cum Laude) in Biological Sciences in 1976. Immediately after college, and prior to entering dental school, he served as a health care administrator in the United States Army. After receiving his Doctor of Dental Surgery degree from the University of Tennessee College of Dentistry in 1984, Dr. Ragain was commissioned in the United States Navy Dental Corps. During his career in the Navy he completed postgraduate programs in Operative Dentistry (Master of Science in Restorative Dentistry, University of Michigan) and Oral Biology/Dental Materials (Doctor of Philosophy, The Ohio State University). While in the Navy, he served in numerous senior administrative positions in clinical dentistry and dental research, and he held several adjunct faculty positions. Among those assignments, he directed the largest Operative Dentistry department in the Navy (Naval Recruit Training Center, Great Lakes, IL), and he commanded the Naval Dental Research Institute/Naval Institute for Dental and Biomedical Research for four years.

One of his most interesting experiences was that of serving on a joint Institute of Medicine and National Aeronautics and Space Administration subcommittee studying dental issues and dental treatment of astronauts deployed on long-term space missions. Dr. Ragain has served as a member of the UTHSC College of Dentistry Alumni Board of Trustees for ten years. An active member of the board, he has held several official board positions, and he is the immediate Past President of the University of Tennessee Dental Alumni Association. Dr. Ragain retired from the Navy and joined the faculty of the UTHSC College of Dentistry in September 2013.

Ragain Dental Student Endowment
Over the past ten years, Dr. Ragain has exhibited a keen interest in facilitating the participation of dental students in research. He and his wife, Debbie, established the Ragain Dental Student Endowment as a means of supporting the research activities of dental students. Also, Dr. Ragain has actively promoted the Summer Student Research Training Program to the University of Tennessee Health Science Center, College of Dentistry Alumni Association Board of Trustees. Recognizing the importance of this student research program, the Alumni Association has annually committed funds for the Summer Student Research Training Program. This program is a means in which dental students have the opportunity to get involved in research after the end of the spring semester. The students engage in individualized research projects working under the guidance and expertise of a faculty mentor in his or her laboratory or clinic. The duration of the program is eight to ten weeks, and students are provided with stipends for their participation. Students are required to present their research data in an oral presentation to their colleagues, faculty, and dental alumni. Student researchers will also be encouraged to present their research at national and international forums (including American Association for Dental Research/International Association for Dental Research meetings and the Hinman Student Research Symposium). All student researchers are required to present their research as table clinic or posters at the annual Student Research Day held on campus each February.

The Student Research Day program includes a key note lecture by a world-class speaker in Oral Translational Research. The lecture is followed by an afternoon of presentations. Students may choose to present their work in table clinic or poster form. Presentations are judged by a panel of faculty and alumni representatives. Students compete for several honors to be awarded. Superlative performance is acknowledged by the presentation of awards. The honors include “The Student Clinician Award for the Most Outstanding Presentation” sponsored by Dentsply and the American Dental Association (ADA). The student who receives this honor will be awarded a trip to the ADA annual meeting to present his/her research project. Other awards include the “Harold

Dr. Ragain assists D-1 student Creighton Powell on his research project in the Biomaterials lab.
Cloogman Award” for the best summer research program project and the “James C. Ragain Awards” for Student Summer Research Program projects in 2nd, 3rd, 4th, and 5th place. The Summer Student Research Training Program has been an outstanding success and has grown from eight students to a program high of 27 dental students participating this year.

This summer, Dr. Ragain has had the opportunity to serve as a mentor for six student researchers. He is excited to finally be working directly with the students, and he has found it to be a very rewarding experience. He whole-heartedly encourages faculty and students to consider participating next summer.

Clinical Research

The following is a list of current clinical research studies being conducted by UT College of Dentistry faculty. The title, investigators, and study objective are listed for each project.

**A clinical evaluation of NobelProcera™ implant bar overdenture in the mandible or maxilla on 4 NobelProcera™ CC implants**

Study Objective: To determine the bone behavior and survival rates of the NobelProcera™ implants, the bar, and the overdenture evaluating its clinical behavior.

Principal Investigator: Dr. Vinay Jain and Dr. Audrey Selecman

Co-Investigators: Dr. David Cagna, Dr. Pradeep Adatrow

**Multi-center phase 3 trial of minocycline hcl1 mg microspheres for use in subjects with peri-implantitis: clinical and microbiological evaluations.**

Study Objective: To demonstrate the ability of Minocycline HCl Microspheres, 1mg to improve peri-implantitis, following mechanical debridement, when compared to debridement alone.

Principal Investigators: Dr. Paul Bland

Co-Investigators: Dr. Anastasios Karydis, Dr. Rania Livada

Research Staff: Colette Stewart

**Plaque Glycolysis and Saliva Genetics – A Pilot Study**

Study Objective: To improve the sensitivity of our laboratory and clinical methods used in plaque analysis and advance the prevention of oral disease including dental caries.

Principal Investigator: Dr. Franklin Garcia-Godoy

Co-Investigators: Dr. Yanhui Zhang and Colette Stewart

Research Staff: Laura Rush

**Screening and Qualification of Subjects for Future PGRM Studies**

Study Objective: To screen and qualify subjects with sufficient level of plaque and metabolic activity for future plaque glycolysis and regrowth method (PGRM) studies.

Principal Investigator: Dr. Franklin Garcia-Godoy

Co-Investigators: Dr. Yanhui Zhang
The Effects on Plaque Glycolysis of a Test Dentifrice as Compared to Marketed Controls

Study Objective: To assess plaque acidogenicity of a test marketed dentifrice as compared to a positive and negative control.

Principal Investigator: Dr. Franklin Garcia-Godoy

Co-Investigators: Dr. Yanhui Zhang

Research Staff: Laura Rush and Colette Stewart

Osteonecrosis of the Jaw (ONJ) Case Registry

Study Objective: This ONJ case registry will describe the natural history of positively-adjudicated ONJ in subjects with cancer with an observation period of 5 years.

Principal Investigator: Dr. Cesar Migliorati

Research Staff: Laura Rush

A Study to Assess the Effects on Plaque Glycolysis of a Test Rinse as Compared to Marketed Controls

Study Objective: To assess plaque acidogenicity of a test mouthrinse as compared to a marketed controls in a clinical trial.

Principal Investigator: Dr. Franklin Garcia-Godoy

Co-Investigators: Dr. Yanhui Zhang

Research Staff: Laura Rush and Colette Stewart

Publications

The following is a list of publications by College of Dentistry faculty from mid-January 2014 to present, and recent as well as upcoming presentations.

PUBLICATIONS


Mayo V, Sawatari Y, Huang C-Y, Garcia-Godoy F. Neural crest-derived dental stem cells – Where we are and where we are going. *J Dent* 2014; in press.


Huang G T-J. Regeneration of the dentine–pulp complex with revitalization/revascularization therapy: challenges and hopes. Presentation at the International Association for Dental Research General Sessions, in Cape Town, South Africa in June.

Technology Spotlight

EnVision® Multilabel Plate Reader

**Location**
Bioscience Research Center

**Description**
EnVision® Multilabel Plate Reader by PerkinElmer® (Waltham, MA) – with options including a laser-based HTS AlphaScreen, dispenser, and plate stacker.

**Applications**
The EnVision can evaluate:
- Enhanced luminescence
- Laser-based TR-FRET
- AlphaScreen technologies

It supports all main non-radiometric technologies with kinetic and scanning measurements, bottom-reading and a wide range of filters and dichroic mirrors. The system reads all non-isotopic detection technologies in all major applications and uses a majority of standard microplate formats.
Dr. George Huang, Dr. Antheunis Versluis and Dr. Daranee Tantbirojn-Versluis all gave presentations at the 2014 International Association of Dental Research General Session this summer in Cape Town, South Africa where they had the opportunity to share their research conducted here at the College of Dentistry with the global dental community.

**Biology & Therapeutics of Stem Cells Session**  

**Other Material Properties Session**  
**Poster Presentation:** D. Tantbirojn, C.S. Pfeifer, A.N. Amini, and A. Versluis. *Simple optical approach to measure composite polymerization shrinkage.*

**Mechanical & Surface Properties of bulk Fill & Traditional Resin Composites Session**  

**Nutritional Approaches in Dentistry & Child Obesity**

Dr. Connie Mobley, Ph.D., R.D. is the Associate Dean of Research, at the School of Dental Medicine, University of Nevada in Las Vegas. UTHSC had the honor of welcoming Dr. Mobley to our campus to share her research on the effect of poor nutrition on oral health of obese children.

The lecture given on July 21st, was part of the department of Preventive Medicine’s Mildred Reeves Distinguished Visiting Professorship Lecture series.
The following is a list of current grants/sponsorships held by UT College of Dentistry faculty.

**FEDERAL/FOUNDATION GRANTS**

- **Stem cell-based therapy for regenerative endodontics**
  - PI: George Huang (Bioscience Research)
  - NIH/NIDCR RO1

- **Hinman Student Research Symposium**
  - PI: Franklin Garcia-Godoy, D.D.S., M.S., Ph.D., Ph.D.(Bioscience Research)
  - NIH/NIDCR (R13)

- **Osteonecrosis of the jaw (ONJ) case registry**
  - PI: Cesar Migliorati
  - Amgen

- **Effects of non-thermal plasma treatment on composite restoration and caries prevention**
  - PI: Dr. Liang Hong, D.D.S., M.S., Ph.D. (Pediatric Dentistry)
  - NIH

- **Stem cell-mediated periodontal ligament regeneration for avulsed teeth**
  - PI: Dr. George Huang, (Bioscience Research)
  - American Association of Endodontics

- **Evaluation: NobelProcera implant bar overdenture in the mandible/maxilla on NobelReplace implants**
  - PI: Dr. Vinay Jain and Dr. Audrey Selecman
  - Co-PIs: Dr. David Cagna
  - Nobel Biocare

- **Advanced nursing Education (ANE) Grant**
  - PI: Susan Patton
  - Co-I: Drs Cesar Migliorati, Timothy Hottel, Cassandra Ballard-Holder, Margaret Hartig, and Pamela Connor
  - HRSA

- **Plaque pH analysis project**
  - PI: Dr. Franklin Garcia-Godoy
  - Procter & Gamble

- **Bioscience endodontics research**
  - PI: Dr. Franklin Garcia-Godoy

- **Colgate research**
  - PI: Dr. Franklin Garcia-Godoy
  - Colgate
• Screening and qualification of subjects for future PGRM studies
  o PI: Dr. Franklin Garcia-Godoy
  o Co-I: Dr. Yanhui Zhang
  o Procter & Gamble

• A study to assess the effects on plaque glycolysis and regrowth activity of two marketed dentifrice compared to a negative control
  o PI: Dr. Franklin Garcia-Godoy
  o Co-I: Dr. Yanhui Zhang
  o Procter & Gamble

• Protocol to integrate 3-D photography
  o PI: Dr. Holland Maness
  o American Association of Orthodontists Foundation

FOR MORE INFORMATION ABOUT THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER, VISIT:
www.uthsc.edu

The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.
The UTHSC College of Dentistry was founded in 1878 making it the oldest dental college in the South, and the third oldest public college of dentistry in the United States. The College contains a 4-year dental program, totaling approximately 320 students. In addition, students in the Postgraduate dental programs and Dental Hygiene are included. The College is dedicated to providing professional, graduate, and postgraduate education; conducting dental research; and delivering state-of-the-art patient care and public service.