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<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin L. Adamo, Ph.D.</td>
<td>1</td>
</tr>
<tr>
<td>Reto Asmis, Ph.D.</td>
<td>2</td>
</tr>
<tr>
<td>Steven N. Austad, Ph.D.</td>
<td>3</td>
</tr>
<tr>
<td>Yidong Bai, Ph.D.</td>
<td>4</td>
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<tr>
<td>Michael J. Beckstead, Ph.D.</td>
<td>5</td>
</tr>
<tr>
<td>Alex Bishop, Ph.D.</td>
<td>6</td>
</tr>
<tr>
<td>Rochelle Buffenstein, Ph.D.</td>
<td>7</td>
</tr>
<tr>
<td>Bandana Chatterjee, Ph.D.</td>
<td>8</td>
</tr>
<tr>
<td>Xiao-Dong Chen, M.D., Ph.D.</td>
<td>9</td>
</tr>
<tr>
<td>Barbara A. Christy, Ph.D.</td>
<td>10</td>
</tr>
<tr>
<td>Robert A. Clark, M.D.</td>
<td>11</td>
</tr>
<tr>
<td>Patricia Dahia, M.D., Ph.D.</td>
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</tr>
<tr>
<td>Lily Q. Dong, Ph.D.</td>
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</tr>
<tr>
<td>Benjamin A. Eaton, Ph.D.</td>
<td>14</td>
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<tr>
<td>Gabriel Fernandes, Ph.D.</td>
<td>15</td>
</tr>
<tr>
<td>Kathleen Fischer, Ph.D.</td>
<td>16</td>
</tr>
<tr>
<td>Maria Gaczynska, Ph.D.</td>
<td>17</td>
</tr>
<tr>
<td>Veronica Galvan, Ph.D.</td>
<td>18</td>
</tr>
<tr>
<td>Andrea Giovicida, Ph.D.</td>
<td>19</td>
</tr>
<tr>
<td>Samy L Habib, MSc, Ph.D.</td>
<td>20</td>
</tr>
<tr>
<td>E. Paul Hasty, D.V.M.</td>
<td>21</td>
</tr>
<tr>
<td>Peter J. Hornsby, Ph.D.</td>
<td>22</td>
</tr>
<tr>
<td>Tim Hu-Ming Huang, Ph.D.</td>
<td>23</td>
</tr>
<tr>
<td>Yuji Ikeno, M.D., Ph.D.</td>
<td>24</td>
</tr>
<tr>
<td>Erzsebet K. Kokovay, Ph.D.</td>
<td>25</td>
</tr>
<tr>
<td>Ellen Kraig, Ph.D.</td>
<td>26</td>
</tr>
<tr>
<td>Eileen Lafer, Ph.D.</td>
<td>27</td>
</tr>
<tr>
<td>Pamela Larsen, Ph.D.</td>
<td>28</td>
</tr>
<tr>
<td>James Lechleiter, Ph.D.</td>
<td>29</td>
</tr>
<tr>
<td>John C. Lee, Ph.D.</td>
<td>30</td>
</tr>
<tr>
<td>Senlin Li, MD</td>
<td>31</td>
</tr>
<tr>
<td>Feng Liu, Ph.D.</td>
<td>32</td>
</tr>
<tr>
<td>Linda M. McManus, Ph.D.</td>
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</tr>
<tr>
<td>Nicolas Musi, M.D.</td>
<td>34</td>
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<tr>
<td>James F. Nelson, Ph.D.</td>
<td>35</td>
</tr>
<tr>
<td>Carlos Orihuela, Ph.D.</td>
<td>36</td>
</tr>
<tr>
<td>Qitao Ran, Ph.D.</td>
<td>37</td>
</tr>
<tr>
<td>Hai Rao, Ph.D.</td>
<td>38</td>
</tr>
<tr>
<td>Shane Rea, Ph.D.</td>
<td>39</td>
</tr>
<tr>
<td>Vivienne Rebel, M.D., Ph.D.</td>
<td>40</td>
</tr>
<tr>
<td>Arlan G. Richardson, Ph.D.</td>
<td>41</td>
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<tr>
<td>Z. David Sharp, Ph.D.</td>
<td>42</td>
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<tr>
<td>Paula Shireman, M.D.</td>
<td>43</td>
</tr>
<tr>
<td>Rui Sousa, Ph.D.</td>
<td>44</td>
</tr>
<tr>
<td>Randy Strong, Ph.D.</td>
<td>45</td>
</tr>
<tr>
<td>LeZhe Sun, Ph.D.</td>
<td>46</td>
</tr>
<tr>
<td>Suzette Tardif, Ph.D.</td>
<td>47</td>
</tr>
<tr>
<td>Holly Van Remmen, Ph.D.</td>
<td>48</td>
</tr>
<tr>
<td>Christi A. Walter, Ph.D.</td>
<td>49</td>
</tr>
<tr>
<td>Pei Wang, Ph.D.</td>
<td>50</td>
</tr>
<tr>
<td>Chih-Ko Yeh, Ph.D.</td>
<td>51</td>
</tr>
</tbody>
</table>
BIOLOGY OF AGING TRACK

GRADUATE SCHOOL OF BIOMEDICAL SCIENCES
UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO

TRACK LEADERS:

SUZETTE D. TARDIF, PH.D., TRACK LEADER
PROFESSOR OF CELLULAR AND STRUCTURAL BIOLOGY
TARDIF@UTHSCSA.EDU

PETER J. HORNSBY, PH.D., TRACK CO-LEADER
PROFESSOR OF PHYSIOLOGY
HORNSBY@UTHSCSA.EDU

Biology of Aging Ph.D. Track/Program

This Program will provide graduate students with a unique curriculum designed to train them in the basic biology of aging, thereby preparing them to thrive at a unique interface of bioscience and medicine. The Program will encompass lectures and laboratory instruction in molecular, cellular, and physiological mechanisms of aging. Also covered will be theories of aging, genetic versus environmental impacts on aging rate, experimental paradigms of aging research, the biology of organisms, demographic analysis of aging, comparative and evolutionary biology of aging, pathobiology of selected organ systems, and recent advances in genetic and environmental treatments that extend life and prevent disease.
## Biology of Aging Track Students

To view personal Web pages of students, link to:  
http://barshopinstitute.uthscsa.edu/main/graduate/currentstudents

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail Address</th>
<th>Faculty Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008 Class</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jamila Momand</td>
<td><a href="mailto:momand@uthscsa.edu">momand@uthscsa.edu</a></td>
<td>Christi Walter, Ph.D.</td>
</tr>
<tr>
<td><strong>2009 Class</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaitlyn Lewis</td>
<td><a href="mailto:lewiskn@uthscsa.edu">lewiskn@uthscsa.edu</a></td>
<td>Rochelle Buffenstein, Ph.D.</td>
</tr>
<tr>
<td>Yanan Chen</td>
<td><a href="mailto:cheny7@uthscsa.edu">cheny7@uthscsa.edu</a></td>
<td>James Lechleiter, Ph.D.</td>
</tr>
<tr>
<td>Daniel Pulliam</td>
<td><a href="mailto:pulliamd@uthscsa.edu">pulliamd@uthscsa.edu</a></td>
<td>Holly Van Remmen, Ph.D.</td>
</tr>
<tr>
<td>JennaLynn Styskal</td>
<td><a href="mailto:styskal@uthscsa.edu">styskal@uthscsa.edu</a></td>
<td>Arlan Richardson, Ph.D.</td>
</tr>
<tr>
<td>Michael Walsh</td>
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<td>Holly Van Remmen, Ph.D.</td>
</tr>
<tr>
<td><strong>2010 Class</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amanda Galan</td>
<td><a href="mailto:galan@uthscsa.edu">galan@uthscsa.edu</a></td>
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</tr>
<tr>
<td>David Melton</td>
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<td>Paula Shireman, M.D.</td>
</tr>
<tr>
<td>Samantha Rendon</td>
<td><a href="mailto:rendons@uthscsa.edu">rendons@uthscsa.edu</a></td>
<td>Steven Austad, Ph.D.</td>
</tr>
<tr>
<td>Rashmi Singh</td>
<td><a href="mailto:singhr3@uthscsa.edu">singhr3@uthscsa.edu</a></td>
<td>Randy Strong, Ph.D.</td>
</tr>
<tr>
<td>Danielle Victor</td>
<td><a href="mailto:victord@uthscsa.edu">victord@uthscsa.edu</a></td>
<td>Jean Jiang, Ph.D.</td>
</tr>
<tr>
<td><strong>2011 Class</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jacob Hemmi</td>
<td><a href="mailto:hemmi@uthscsa.edu">hemmi@uthscsa.edu</a></td>
<td>Peter Hornsby, Ph.D.</td>
</tr>
<tr>
<td><strong>2012 Class</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shauna Hill</td>
<td><a href="mailto:hill54@livemail.uthscsa.edu">hill54@livemail.uthscsa.edu</a></td>
<td>Holly Van Remmen, Ph.D.</td>
</tr>
<tr>
<td>Sealy Hambright</td>
<td><a href="mailto:hambright@livemail.uthscsa.edu">hambright@livemail.uthscsa.edu</a></td>
<td>Qitao Ran, Ph.D.</td>
</tr>
<tr>
<td>Rene Solano Fonseca</td>
<td><a href="mailto:solanofonsec@livemail.uthscsa.edu">solanofonsec@livemail.uthscsa.edu</a></td>
<td>Erzsebet Kokovay, Ph.D.</td>
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<tr>
<td><strong>2013 Class</strong></td>
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<tr>
<td>Erin Munkacsy</td>
<td><a href="mailto:munkacsy@livemail.uthscsa.edu">munkacsy@livemail.uthscsa.edu</a></td>
<td>Shane Rea, Ph.D.</td>
</tr>
<tr>
<td>Brian Stoveken</td>
<td><a href="mailto:stoveken@livemail.uthscsa.edu">stoveken@livemail.uthscsa.edu</a></td>
<td>James Lechleiter, Ph.D.</td>
</tr>
</tbody>
</table>

**Graduates of the Biology of Aging Track**

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail Address</th>
<th>Faculty Advisor</th>
</tr>
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<tbody>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilson Fok</td>
<td><a href="mailto:fok@uthscsa.edu">fok@uthscsa.edu</a></td>
<td>Arlan Richardson, Ph.D.</td>
</tr>
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CHECKLIST FOR STUDENTS OF THE BIOLOGY OF AGING TRACK

Typical Timeline through Years One and Two:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Coursework</th>
<th>Hours</th>
<th>Qualifying Exam (written &amp; oral)</th>
<th>Dissertation Proposal &amp; Candidacy Admission</th>
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<tr>
<td>Fall - Year 1</td>
<td>Fundamentals of Biomedical Sciences</td>
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<td></td>
<td>Research (rotations)</td>
<td>2</td>
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<td>Spring - Year 1</td>
<td>Biology of Aging Core Course</td>
<td>4</td>
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<tr>
<td></td>
<td>Ethics</td>
<td>0.5</td>
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<tr>
<td></td>
<td>Research (rotations) – hours depend on whether electives also taken this term</td>
<td>2 - 3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer - Year 1</td>
<td>Research (rotations or with mentor)</td>
<td>6</td>
<td></td>
<td></td>
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<tr>
<td>Fall - Year 2</td>
<td>Experimental design/analysis</td>
<td>2</td>
<td></td>
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<td></td>
<td>Scientific Writing</td>
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<td>Colloquium</td>
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<td></td>
<td>Seminar CSB 6090 **</td>
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<td>Research CSB 6097</td>
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<td>Spring - Year 2</td>
<td>Seminar CSB 6090</td>
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<td>Completed by ~ September of Year 3</td>
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<td>Summer - Year 2</td>
<td>Research CSB 6097</td>
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<tr>
<td>Variable*</td>
<td>Supervised Teaching</td>
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<td></td>
<td>Electives</td>
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</tbody>
</table>

* Must be completed sometime before degree can be awarded.

Following candidacy admission, student will take a total of **9 hours each fall or spring** (electives – variable, seminar – 1 hour, dissertation research – variable) and **6 hours in summer**.

**Seminar requirement. Students are expected, each fall and spring term, from Year 2 onwards, to:**

- ✔ Attend the Barshop Aging Seminar Series (Wednesdays at 3:30 pm)
- ✔ Attend the Aging Journal Club (Fridays at 12:00 pm) and present at this journal club at least once per year
- ✔ Attend the CSB Departmental Seminar Series at any time that a student is presenting
The role of insulin-like growth factor-I in the regulation of:

- Tumor cell biology
- Bone Formation
- Intermediary metabolism
- Oxidative stress in muscle and other tissues
- Biological aging
Reto Asmis, Ph.D.

Graduate School of Biomedical Sciences
Biochemistry and Clinical Laboratory Science
asmis@uthscsa.edu
(210) 567-3711
Laboratory Website:
http://mbb.uthscsa.edu/faculty.php?displayID=32

Education
Ph.D., the University of Fribourg, Switzerland
Postdoctoral fellow, the University of California, San Diego
Postdoctoral fellow, the University of Bern, Switzerland

Positions
Associate Dean, Graduate School of Biomedical Sciences, UTHSCSA
Professor of Clinical Laboratory Science and Biochemistry
Director, Research Development, School of Health Professionals
Vice-Chair, IMGP Admissions Committee
Course director, INTD 5008 Research Rotations

Honors
Associate Editor, Atherosclerosis
Member of the Editorial Board, Journal of Nutritional Biochemistry

- Monocytes and Macrophages in the Development and Progression of Micro- and Macrovascular Diseases
- Protein-S-glutathionylation in the Regulation of Metabolic and Signaling Pathways
- Phytonutrients in the Prevention and Treatment of Cardiovascular Diseases and Diabetic Complications
Steven N. Austad, Ph.D.

Cellular and Structural Biology and the Barshop Institute
Professor
austad@uthscsa.edu
(210) 562-6011
Departmental Website:
http://www.uthscsa.edu/csb/faculty/austad.asp

Education
Ph.D., Purdue University
Postdoctoral fellow, the University of New Mexico

Positions
Professor of Cellular and Structural Biology
Core Leader, Comparative Biology of Aging Core, San Antonio Nathan Shock Center for Excellence in the Biology of Aging
Director, NIA-Biology of Aging Training Grant
Course Director, Scientific Writing Course

Honors
Fellow, Gerontological Society of America
Member, Board of Directors, American Federation for Aging Research
Robert W. Kleemeier Award for Outstanding Research, Gerontological Society of America

research
credentials

Visualizing DNA damage: the better the tail of the “comet,” the more DNA strand breaks.

- Theories of Aging
- Comparative Biology of Aging
  - Role of Genome Maintenance
  - Role of Stress Resistance
- Caloric Restriction
Yidong Bai, Ph.D.

Cellular and Structural Biology
Associate Professor
baiy@uthscsa.edu
(210) 567-0561
Departmental Website:
http://www.uthscsa.edu/csb/faculty/bai.asp

Education
Ph.D., Columbia University
Postdoctoral fellow, California Institute of Technology

Positions
Associate Professor, Cellular and Structural Biology

Honors
New Scholar in Aging, Ellison Medical Foundation
Scientist Development Award, American Heart Association
New Investigator Award, United Mitochondrial Disease Foundation

- Age-dependent accumulation of mitochondrial DNA mutations
  - in neuronal cells
  - in skeletal muscles
- Bioenergetic, biochemical analysis of mitochondria during aging
- Isolation, identification and characterization of mtDNA mutations associated with aging
Dopamine neurons of the ventral midbrain contribute to voluntary movement, the processing of natural rewards, and the etiology of several neurological disorders including Parkinson's disease, schizophrenia and drug addiction. We use patch clamp electrophysiology of dopamine neurons to investigate both basic and applied questions concerning synaptic neurotransmission and cell excitability.

**Regulation of dopaminergic synaptic transmission**

While dopamine neurons are known to synapse onto each other in a dendro-dendritic manner, only recently has the first synaptic potential mediated directly by the neurotransmitter dopamine been identified (Beckstead et al., 2004). This finding has enabled investigations concerning the pre- and post-synaptic regulation of dopamine transmission. One major focus of the lab is to identify short- and long-term changes in synaptic strength ("plasticity") that are important for the behavioral consequences of dopamine cell activity.

**Methamphetamine-induced changes in dopamine neuron activity**

People who begin to abuse psycho-stimulants (such as methamphetamine) do so presumably for immediately pleasurable pharmacological effects. However, repeated administration of many compounds produces wholesale physiological adaptations in cellular excitability and synaptic strength that can cause drugs to become addictive. We use operant self-administration of methamphetamine in rodents to model human drug use and to investigate hypotheses concerning synaptic regulation of drug-related behaviors. Determining the neurophysiological adaptations that occur with prolonged drug use is an important first step in identifying intervention strategies to better understand and possibly treat human drug abuse.
**Alex Bishop, D.Phil.**

**Cellular and Structural Biology**

Associate Professor bishopa@uthscsa.edu  
(210) 562-9060  
Departmental Website:  
http://www.uthscsa.edu/csb/faculty/bishop.asp

---

**Education**

D.Phil. from Oxford University, UK  
Postdoctoral Fellow at Harvard School of Public Health  
Postdoctoral Fellow at Harvard Medical School

**Positions**

Associate Professor of Cellular and Structural Biology  
Principal Director of the Greehey Children’s Cancer Research Institute  
Programmatic Member of the Department of Molecular Medicine  
Course Director for Cancer Biology Core I  
Module Director Week 2 INTD5000 Funds of Biomedical Sciences  
Curriculum chair Cancer Biology Track  
Academic Editor PLoS ONE  
Member of Ewing’s Sarcoma Biology Subcommittee for Children’s Oncology Group

**Honors**

2010 Cellular and Structural Biology Award for Excellence in Graduate Student Education  
2010 Voelcker Fund Young Investigator Award

---

**Research**

Genetics of genomic instability, its role in cancer, aging and development

- Mouse models to measure homologous recombination frequency
- Relationship of tumor suppressor genes and genomic instability
- Phenotypic analyses *in vivo* over age
- Cellular phenotypes to correlate with animal model observations
- Molecular biology to manipulate cellular phenotypes

Systems biology approaches to understand acute and chronic DNA damage responses

- Genomic libraries of RNAi for *Drosophila*
- RNA sequencing for transcriptional analyses
- Bioinformatics analyses (protein interactome, computational biology, gene ontology, cellular localization, pathway resolution)
- Comparative biology identifying functional conservation, particularly with fly to mouse and human
Fifteen-year old naked mole-rat. The life span of NMRs is approximately 30 years – 10 times longer than predicted by body size – and continues to breed and maintain physiological function throughout their long life.

- Naked mole-rats as a model of delayed aging
- Comparative biology of aging
- Cancer resistance in naked mole-rats
- Mechanisms of cytotoxic protection
- Nrf2 signaling and aging
- Nutritional and endocrine aspects of aging
Bandana Chatterjee, Ph.D.

Molecular Medicine
Professor
chatterjee@uthscsa.edu
(210) 567-7218
Departmental Web site:

Education
Ph.D., the University of Nebraska
Postdoctoral fellow, Oakland University, Rochester, MI

Positions
Professor, Department of Molecular Medicine, UTHSCSA
Senior Research Career Scientist, South Texas Veterans Health Care System

Honors
Gold Medals in Chemistry, B.Sc., University of Calcutta
Gold Medals in Chemistry, M.Sc., University of Calcutta
Sandoz Visiting Scientist, University of California San Diego
VA Senior Career Scientist
Dean’s Exceptional Graduate Teaching Excellence Award, UTHSCSA

Research
Androgen receptor, gene regulation and prostate cancer
Androgen receptor (AR) expression is down regulated during aging, oxidative stress and inflammation due to transcriptional repression. Transcription factors that coordinate this age-dependent down-regulation of AR have been characterized and their modes of action delineated using in vitro and in vivo approaches. We have identified novel post-translational modification involving poly(ADP-ribosyl)ation regulating transcriptional repression of AR during aging and oxidative stress. This finding has important implications in understanding physiological abnormalities in aging, cancer and in various neurological dysfunctions (such as Alzheimer’s disease and Parkinson’s disease.)

Orphan nuclear receptors in the regulation of steroid and drug metabolism
The role of nuclear hormone receptors in the metabolic clearance of prescription drugs and environmental toxins through enzymatic sulfonation involving the SULT2A sulfotransferase is being investigated. We have shown that the bile acid receptor (FXR) and the xenobiotic receptors (PXR and CAR) are potent inducers of sulfonation-directed cholesterol and drug metabolism. Current studies are directed to characterize the individual and combinatorial interplay of non-receptor transcription factors with FXR, PXR, CAR and AR to regulate sulfonation. Investigation is also under way to characterize the changes in this regulation during aging, caused by an altered endocrine and metabolic milieu.

A second focus in this area is the analysis we are analyzing the role of sulfonation in liver cancer using a transgenic approach. Our goal is to search for therapeutic agents that can block sulfonation and prevent liver cancer initiated by environmental carcinogens.
Xiao-Dong Chen, M.D., Ph.D.

Comprehensive Dentistry
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Departmental Website:
http://profiles.uthscsa.edu/?pid=profile&id=2080J7575

Education
M.D., Shanghai Jiao-Tong University School of Medicine, China
Ph.D., University of Nebraska Medical Center at Omaha
MS, Bioinformatics from Johns Hopkins University Engineering
Postdoctoral fellow, Yale University School of Medicine
Postdoctoral fellow, NIDCR/NIH

Positions
Professor, Department of Comprehensive Dentistry
Adjunct Associate Professor, Department of Orthopaedics
Visiting Professor, Ren-Ji Hospital, Shanghai Jiao-Tong University School of Medicine,
Shanghai, P.R.China

Honors
Young Investigator Award, the 3rd International Congress on Osteoporosis
NIDCR Travel Award
Nathan Shock New Investigator Award from the Gerontological Society of America

Increased skeletal tissue formation by MSCs from mice aged either 3 months (3M) or 18 months (18M), cultured on young-ECM made by bone marrow cells from 3M (Y-ECM) as compared to tissue culture plastic (Plastic) or old-ECM made by bone marrow cells from 18M (O-ECM).
Barbara A. Christy, Ph.D.

Molecular Medicine, Institute of Biotechnology
Associate Professor
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(210) 567-7227
Departmental Website:
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Education
Ph.D., Biology, John Hopkins University
Postdoctoral fellow, the Department of Biology, John Hopkins University, Baltimore, MD
Postdoctoral fellow, the Howard Hughes Medical Institute, John Hopkins School of Medicine, Baltimore, MD

Positions
Biologist, National Cancer Institute
Predoctoral Fellow with Dr. George Scangos, Department of Biology, Johns Hopkins University
Predoctoral Fellow with Dr. George Scangos, Department of Biology, Johns Hopkins University
Predoctoral Fellow with Dr. Daniel Nathans, Howard Hughes Medical Institute, Department of Molecular Biology & Genetics, Johns Hopkins School of Medicine
Associate Professor, Institute of Biotechnology, Department of Molecular Medicine, UTHSCSA
Associate Professor, Institute of Biotechnology, Department of Molecular Medicine, UTHSCSA
Adjunct Appointment, Department of Cellular and Structural Biology, UTHSCSA
Adjunct Appointment, Department of Physiology, UTHSCSA

Our laboratory is interested in proteins involved in control of mammalian cell growth and differentiation. A major project in the laboratory focuses on the Id proteins. Id proteins are small helix-loop-helix (HLH) proteins which are thought to act as dominant-negative regulators of transcription factors which regulate cellular differentiation and growth in a number of cell lineages. Id proteins interact with these and other regulatory proteins to affect their activities, and have recently been implicated in tumorigenesis and angiogenesis. We are investigating the mechanisms of action of the four mammalian Id proteins (Id1-4). We have identified proteins which interact with these proteins and thus represent targets for Id protein regulation. On the other hand, some of the interacting proteins represent proteins which may regulate Id protein activities. One such protein, JAB1, is a subunit of a large protein complex called the COP9 signalosome. This complex is implicated in cell cycle regulation and cell signaling. We are currently investigating the consequences of the Id-JAB1 interaction in cells. Our long-term goal is to define the importance of these and other regulatory proteins in the control of growth and differentiation, and to devise ways of controlling these activities.
Robert A. Clark, M.D.

**Education**
- M.D., Columbia University
- Postdoctoral fellow, NIH, Bethesda, MD

**Positions**
- Assistant Vice President for Clinical Research
- Director, Institute for Integration of Medicine & Science
- PI, NIH Clinical & Translational Science Award

**Honors**
- UTHSCSA Presidential Distinguished Senior Research Scholar Award for 2011
- American Society for Clinical Investigation
- Association of American Physicians
- Medical Investigator Career Award, Veterans Administration
- MERIT Award, National Institutes of Health
- Chair, Gordon Research Conference on Phagocytes
- Fellow, American Association for the Advancement of Science
- Distinguished Achievement Award, University of Iowa
- Master, American College of Physicians

**Departmental Website:**
http://medicine.uthscsa.edu/Medicine/facultystaff.aspx?p=0V71ETRQC

**Protein components of the phagocyte superoxide-producing NADPH oxidase.**
- Inflammation and innate immunity
- Phagocyte cell biology
- NADPH oxidases of the NOX gene family
- Reactive oxygen species
- Oxidative stress and neurodegeneration
Patricia Dahia, M.D., Ph.D.

Medicine and
Cellular & Structural Biology
Assistant Professor
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Education
M.D. from Federal University of Paraiba, Brazil
Ph.D. from University of Sao Paulo, Brazil
Postdoctoral Fellow at Dana-Farber Cancer Institute, Harvard Medical School

Positions
Course Director, Cancer Biology Core 2

Honors
Claudia Barr Scholar Award
Kimmel Cancer Foundation Scholar Award
Voelcker Young Investigator Award

The laboratory's main focus is the utilization of genomics-based approaches to study the genetics of cancer. Our goal is to identify novel cancer-related genes and to characterize interactions between oncogenic pathways. We use hereditary neural crest-derived tumors, pheochromocytomas, as study models. These highly vascular, catecholamine-secreting tumors are genetically heterogeneous and have functioned as tools for discovery of a variety of oncogenes and tumor suppressor genes. Our primary research lines include:

- Identification of novel tumor susceptibility genes by integrative genomics;
- Characterization of the link between energy metabolism, mitochondria and cancer;
- Define the basis for tissue selectivity in hereditary cancer syndromes: cancer as a developmental disorder.
Lily Q. Dong, Ph.D.

Cellular & Structural Biology
Professor
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Education
Ph.D., Iowa State University
Postdoctoral Fellow, Stanford University

Positions
Professor, Cellular & Structural Biology

Honors
Graduate Student Research Award (Dept. of Biochemistry & Biophysics, Iowa State University)
Research Award (American Heart Association, Texas Affiliate)
New Faculty Startup Award (HHMI-UTHSCSA)
Junior Faculty Development Award (South Texas Health Research Center)
Career Development Award (American Diabetes Association)
Travel Award (American Diabetes Association)

Research

- Insulin resistance, obesity and type 2 diabetes
- The role of adiponectin signaling in aging
The nervous systems of many species, including humans, show obvious declines in function as a result of increasing age. Evidence suggests that the functional decline of the nervous system is a result of the deterioration of synaptic connectivity. The age-dependent loss of synaptic connectivity is also a prominent feature of many neurodegenerative diseases suggesting a link among synaptic degeneration, aging, and disease. The Eaton lab is using the Drosophila model system to identify and characterize synaptic processes that are impaired during aging, and investigate how these processes contribute to the pathogenesis of age-dependent neurodegenerative disease. It is expected that these studies will help clarify how the aging process alters the function of the nervous system and identify new targets for therapies.
The primary focus of my research includes study of calorie restriction on immune function during aging; therapeutic use of dietary fatty acids such as omega-3 long chain fatty acids EPA and DHA on inhibition of renal disease and auto antibodies in autoimmune disease prone, short-lived MRL/lpr and NZBxNZW F1 mice; inhibition of age-related activation of osteoclasts which contribute to bone loss in aging mice by feeding n-3 fatty acids; inhibition of pro-inflammatory cytokines such as IL-6 and TNFα by calorie restriction and feeding n-3 fatty acids, which is found to inhibit activation of various inflammatory genes and transcription factors. We have demonstrated that transgenic Fat-1 mice can endogenously produce n-3 fatty acids from n-6 fatty acids in the diet and confer protection against overiectomy induced bone loss. Our recent studies include use of DHA in inhibition of various genes involved in proliferation of MCF-1 and MDA-MB-231 breast cancer cells and EPA in reducing neuronal pain sensing genes during aging and in metastatic bone malignancy. In addition, our group has also found that, conjugated linoleic acid (CLA), which is approved by the FDA as a dietary supplement to reduce weight gain by lowering fat mass, prevents age-related loss of lean mass as well as bone loss by reducing inflammatory cytokines.
Physiology  
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Education  
Certificate, Science Communication, USCS  
BA Biology and Environmental Studies, USCS  
MA Anthropology, Harvard University  
PhD, Biology and Anthropology, Harvard University  
Postdoctoral Fellowship, Duke University

Positions  
Assistant Professor/Research, UTHSCSA  
Conservation Scientist, Yurok Tribe Conservation Scientist,  
Wildlife Conservation Society

Honors  
Louis B. Leaky Foundation Fellow  
Fulbright Fellow  
Wenner-Gren Fellow

Why organisms age and why they age at widely varying rates are fundamental biological questions that remain unanswered. Even within species, sex differences in age-associated morbidity and mortality can be significant. Among humans, women live longer than men in nearly every society and every historical period. Yet across cultures they are also more likely to suffer from age-related diseases and disabilities.

Identifying the underlying physiological, cellular and molecular mechanisms that account for differences in age-related morbidity and mortality across species and between sexes will provide insights into both proximate and ultimate causes of aging and into potential senescence-retarding therapies.

I work in close collaboration with Professor Steven Austad as well as other faculty members at the Barshop Institute. Research interests include:

- Healthy aging
- Sex differences in aging and healthspan
- Comparative biology of aging
- Assessing health in traditional and nontraditional animal models of aging
- Aging in Hydra
Education
Ph.D., University of Lodz, Lodz (Poland)
Postdoctoral Fellowships: University of Arizona, Harvard Medical School, and MIT

Positions
Associate Professor of Molecular Medicine

Honors
Editorial Board of “Ubiquitin”
Session Chair, HUPO International Conference (2006)
NIH-F05 Study Section Member
AHA Western States Affiliate Study Section Member

Maria Gaczynska, Ph.D.
Molecular Medicine
Associate Professor
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Research
• The role of ubiquitin-proteasome system in aging and cancer.
• Rational design of allosteric regulators of the proteasome.
• Dynamics of biomacromolecules (proteins, nucleic acids) studied by scanning probe microscopy and spectroscopic methods.
Aging is, by far, the greatest risk factor for neurodegenerative diseases. Very little is known about the molecular mechanisms that connect aging to brain diseases like Alzheimer's. With the discovery of genetic pathways that can be precisely manipulated to delay the aging process, hypothesis-driven experiments can be performed to understand brain aging, and to create therapeutic strategies targeting the pathways that drive it. My research group is primarily focused on attempting to identify the molecular pathways that drive brain aging, and to determine how these processes lead to Alzheimer's disease and other neurodegenerations. Our hypothesis is that the pathways that control organismal aging can be harnessed to manipulate brain aging and thus delay or prevent brain age-associated diseases. In addition to experiments in mouse models, we routinely test potential drug candidate molecules with neurobehavioral, cellular and molecular biology tools to determine the effect of these interventions on cognitive outcomes, and to define the mechanisms involved.

Other interests of my lab are on ascertaining the potential of neurogenesis or using neuronal precursor cells for the treatment of brain injury and neurodegeneration, and on the investigation of the role of the nervous system in the control of aging/lifespan in mammals.
Andrea Giuffrida, Ph.D.
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Education
Ph.D., University of Catania (Italy)
Postdoctoral Fellowships: Neuroscience Institute, San Diego, CA;
University of California, Irvine, CA

Positions
Associate Professor, School of Medicine, Department of Pharmacology
Director of Biomedical Research Development - UTHSCSA Office of the VP for Research

Honors
AAAS Fellow in Science and Technology Policy, NIH Office of Science Policy
NIH RO1 (NIMH) "Endocannabinoid Transmission in Schizophrenia"

Research Credentials
My laboratory is interested in the role played by the endocannabinoid system in regulating psychomotor functions. The endocannabinoids are a family of naturally occurring lipids that mimic the effects of marijuana by stimulating specific receptors (cannabinoid receptors) expressed in the brain areas that are critical for the regulation of motor behaviors, such as the basal ganglia.

The Endocannabinoid System

We integrate neurochemistry and behavioral pharmacology to study endocannabinoid transmission in animal models of neurological and psychiatric disorders including Parkinson's disease, essential tremor, and schizophrenia. Our laboratory also investigates the therapeutic effects of cannabinoid-based drugs on levodopa-induced dyskinesias, a disabling motor complication experienced by Parkinsonian patients undergoing long-term treatment with levodopa.
Samy L Habib, MSc, Ph.D.

Cellular and Structural Biology
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Research Scientist, South Texas Veterans Health System
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Education
B.S. in Food Technology, Alexandria University
MSc in Molecular Biology, Alexandria University
PhD in Molecular Carcinogenesis, Roswell Park Cancer Institute, Buffalo, NY

Positions
Associate Professor, Cellular and Structural Biology, UTHSCSA
Research Scientist, Geriatric Research, Education and Clinical Center,
South Texas Veterans Health System, San Antonio
Member, Cancer Therapy and Research Center, UTHSCSA

Honors
Member, Tuberous Sclerosis Complex Research Program study section, DOD
Member, Medical Research Program (PRMRP) study section, DOD
Merit Review Award from Veterans Affairs
Scientist Development Award from American Heart Association
American Heart Association (AHA), Grant-in-Aid Award
New Investigator Award from Department of Veterans Affairs
Junior Faculty Award from American Diabetes Association
Pilot and Feasibility Project Award from NIH/NIDDK
New investigator Award from National Kidney Foundation

The research foci of our laboratory are:

1. Diabetes and cancer: Study the mechanism (s) by which diabetes enhances tumorigenesis including kidney cancer
2. Mutations of OGG1 in diabetic and cancer patients: measure the levels of oxidative DNA damage and identify the mutations in OGG1 gene in diabetic and cancer patients.
3. Role of AMPK/tuberin pathway in fibrosis: dissect the mechanism by which AMPK/tuberin pathway and downstream signaling regulate fibrosis in diabetes
4. Tuberin and tumorigenesis: study the mechanism by which TSC2 regulates the DNA damage (8-oxodG) and repair (OGG1) pathways and other signal transduction including cell cycle proteins in the pathogenesis of renal carcinogenesis.
5. Role of tuberin/mTOR pathway in apoptosis: investigate the role of tuberin/mTOR pathway in apoptosis in diabetes
6. Screening of diabetic patients for cancer: investigate the association between diabetes and all types of cancer.
Research credentials

Mice defective for Ku80 (right), a protein that repairs DNA Double-strand breaks, exhibit early onset of kyphosis (~30 wks) as compared to control (>100 wks).

- Mouse models of aging and cancer
- Cellular responses to DNA damage
- DNA repair

E. Paul Hasty, D.V.M.

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Education
D.V.M., Texas A&M, College Station, Texas
Postdoctoral fellow. Baylor College of Medicine, Houston, Texas

Positions
Professor of Molecular Medicine

Honors
March of Dimes Basil O’Connor Scholar
Peter J. Hornsby, Ph.D.

Physiology
Professor
Biology of Aging Track Co-Leader
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Education
Ph.D., the University of London
Postdoctoral Fellow at the University of California, San Diego

Positions
Professor of Physiology
Biology of Aging Track Co-Leader

Honors
Recipient of the Glenn Foundation Award for Research in the Biology of Aging from the Gerontological Society of America

A translational model for autologous stem cell therapy: nonhuman primate (marmoset) cells are reprogrammed to iPS cells; these cells are differentiated to neurons and transplanted back to the donor animal.

- Cell transplantation approaches to aging and physiology
- Cell therapy for age-related diseases
Dr. Huang has been conducting studies on cancer epigenetics for the last 17 years. He has pioneered the development of high-throughput technologies that are used to investigate molecular interactions between DNA methylation and histone modifications during tumorigenesis. Presently, Dr. Huang and his team members utilize next-generation sequencing approaches to decipher complex epigenetic profiles of various cancer subtypes. These omics approaches are used in combination with statistical and bioinformatic tools to develop biological models of epigenetic regulation of gene expression. In addition to studying epigenetic regulatory mechanisms, Dr. Huang has identified DNA methylation biomarkers that stratify clinicopathological subtypes of solid tumors. These biomarkers will be used to predict treatment outcomes of cancer patients undergoing Phase I clinical trials with combined inhibitors specifically targeting aberrant DNA methylation and oncogenic signaling.
Yuji Ikeno, M.D., Ph.D.

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Education
M.D., Nagasaki University School of Medicine
Ph.D., Anatomic, Surgical, and Experimental Pathology, Nagasaki, University School of Medicine
Postdoctoral Fellow, University of Texas Health Science Center at San Antonio

Positions
Associate Professor, Pathology
Director, Pathology Core, Barshop Institute for Longevity and Aging Studies and the San Antonio Nathan Shock Center for Excellence in the Biology of Aging
Research Health Scientist, South Texas Veterans Health Care System, Audit L. Murphy Division

Honors
Aging Research and Education Center, Pilot Grant Program Award
Gerontological Corporation-Samuel Goldstein Distinguished Publication Award
American Aging Association, Travel Award
Fifteenth Annual Summer Training Course in Experimental Aging Research, Elected Participant

- Histopathological and morphometric analyses of aging rodents.
- Role of oxidative damage in aging and pathologies in rats.
- Role of thioredoxin in oxidative stress, aging, and age-related diseases
Erzsebet K. Kokovay, Ph.D.
Cellular & Structural Biology
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Education
Ph.D., the University of New Mexico in Biomedical Sciences
Postdoctoral fellow, Neural Stem Cell Institute in Rensselaer, NY

Positions
Assistant Professor, Cellular & Structural Biology

The majority of new neurons in the brain are born during development. However, the subventricular zone, which lines the lateral ventricle harbors neural stem cells (NSCs) that proliferate and give rise to progenitors that migrate long distances and give rise to new neurons throughout life. My lab is interested in the mechanisms that regulate adult neurogenesis and NSC quiescence, activation, migration and differentiation potential.
Effects of aging on immunity and autoimmunity
- T cells and B cells
- Immune memory and tolerance
- Mouse and nonhuman primate models
- Transgenic mouse model of myasthenia gravis

Role of T cells in periodontal disease
- *Aggregatibacter actinomycetemcomitans*
- T cell epitopes and cytokines
- Vaccine development
My lab studies the molecular machines involved in vesicular traffic, a fundamental process utilized by all compartmentalized cells from yeast to man to move proteins between different membranous compartments. Our initial interest in this subject grew out of our efforts to dissect the molecular mechanisms underlying synaptic transmission. We showed that the clathrin pathway is essential for synaptic vesicle recycling. We went on to characterize the mechanisms of clathrin polymerization and un-coating that underlie this process. The un-coating reaction is promoted by the chaperone protein Hsc70, which is a member of the Hsp70 family of chaperone proteins. These chaperone proteins are also involved in many aging related disorders that are a consequence of the accumulation of damaged, aggregated proteins (Alzheimer’s, ALS, Parkinson’s, Huntington’s, and others). Therefore we are also interested in understanding the roles these chaperones play in both protein aggregation diseases and cancer during the aging process. We utilize a combination of biochemical and physiological approaches including solution biochemistry (surface plasmon resonance, dynamic light scattering, analytical ultracentrifugation, nuclear magnetic resonance spectroscopy), X-ray crystallography, and electrophysiology. Our work has broad significance since chaperones are involved in many macromolecular complex remodeling reactions.
Education
Ph.D., Vanderbilt University
Postdoctoral fellow, M. I. T. and University of Missouri- Columbia

Positions
Co-Leader of the Cellular and Molecular Biology Track
Course Director for Biology of Aging
Co-Organizer of the Cellular and Structural Biology Seminar Series

Honors
Gerontological Society of America, Biological Sciences: Chair
Gordon Research Conference on Biology of Aging: Co-Chair

- Genetics of Aging
  - daf-2 pathway mechanisms of longevity
  - identification of novel longevity genes
  - molecular responses to temperature by different genotypes

- Metabolism of Long-lived C. elegans
  - lipid contribution to longevity
  - stress resistance

- Mechanism of Dauer Larva Longevity
James Lechleiter, Ph.D.

Cellular and Structural Biology
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Education
Ph.D., the University of Arizona, Tucson
B.S., the University of Minnesota, MN Post-doc at Tufts University, Boston, MA
Postdoctoral fellow, the Mayo Clinic, Rochester, MA

Positions
Professor of Cellular and Structural Biology
Cross-appointed Faculty of Physiology
Director of the Institutional Optical Imaging Facility

Honors
Myasthenia Gravis Foundation Dr. Henry Viets Medical Research Fellowship
University of Arizona Meritorious Teaching
Kendall Award for Meritorious Research, Mayo Clinic / Foundation
U.S. Patent #5,260,578: Confocal Imaging System for Visible and Ultraviolet Light
U.S. Patent #6,449,039: Laser scanning fluorescence microscopy with compensation for
spatial dispersion of fast laser pulses
Erwin Schrodinger Prize for Interdisciplinary Research, Helmholtz Society, Germany

Optical imaging in vivo of the mouse parietal cortex. The brain has been
stained with a mitochondrial dye (red) and nuclear stain (blue).

• Aging
• Neuroprotection
• Ischemia
• Acute brain injury
• In vivo imaging
John C. Lee, Ph.D.

Department of Biochemistry
Distinguished Teaching Professor
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Departmental Website:
http://biochem.uthscsa.edu/faculty.php?displayID=35

Education
Ph.D., Purdue University, W. Lafayette, Indiana
Postdoctoral fellow, Massachusetts Institute of Technology, Boston, MA

Positions
Professor, Department of Biochemistry
Course Director, Biochemistry Research (Bioc 4001)

Honors
Distinguished Teaching Professor
Presidential Award for Teaching Excellence
Texas Academy of Masters Teachers

Our overall research objective is to elucidate:

1. The role of Bone Morphogenetic Proteins (BMPs) in the regulation of gene expression in the differentiation of osteoblast and osteoclast, and the development of osteopenia, and osteoporosis during aging.

2. The molecular mechanisms of action of BMPs and their interactions with their receptors, other growth factors, such as IGF-1, and protein kinase D.
Medicine
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http://medicine.uthscsa.edu/Medicine/facultystaff.aspx?p=0V71EU7ZD

Education
M.D., University of Geneva
Postdoctoral fellow, the University of Texas Health Science Center at San Antonio

Positions
Associate Professor, Department of Medicine
IMGP Admission of Cellular & Molecular Medicine Track

Honors
World Health Organization Scholarship

- Stem Cell RNA-guided Genome Editing/Engineering
- Stem Cell Gene Therapy for Neurodegenerative Diseases (Parkinson’s)
- Stem Cell Gene Therapy for cardiovascular Diseases (atherosclerosis)
- Stem Cell Gene Therapy of Aging, Longevity, and Healthspan
- Stem Cells and Regenerative/Rejuvenative Medicine
Education
Ph.D., Iowa State University
Postdoctoral fellow, Stanford University

Positions
Professor of Pharmacology and Biochemistry

Honors
Zaffarano Prize Award (Honorable Mention), Iowa State University
Research Excellence Award, Iowa State University
Graduate Student Research Award, Dept. Biochem.& Biophys., Iowa State University
Lyndon Baines Johnson Research Award, American Heart Association, Texas Affiliate
Howard Hughes Medical Institute New Faculty Award, UTHSCSA
Career Development Award, American Diabetes Association

Research

Insulin signaling in diabetes, aging, and cancer
Our primary interest lies in studying the insulin signal transduction pathway, which is activated when the hormone insulin binds to its cell surface receptors, resulting in a cascade of biochemical reactions that culminates in regulation of cell growth, differentiation, and metabolism. Defects in any of the steps along this signaling cascade can result in insulin resistance, one of the primary contributors to developing Type 2 diabetes. Uncontrolled activation of this signaling pathway may promote tumor growth and cancer. In order to better understand the molecular mechanism of insulin signal transduction and insulin resistance, we are using molecular biology, biochemistry, and cell biology approaches as well as animal models to identify and characterize signaling components involved in insulin receptor signaling processes. It is our hope that better understanding of the signaling components involved in mediating insulin signal transduction will generate information that may be contributed to the development of new therapeutic drugs for the treatment of Type 2 diabetes and cancer.

We are also interested in investigating the link between insulin signaling and aging. Recent studies from invertebrates suggested that reducing insulin/IGF-1 signaling in the neurons can extend the life-span of these organisms. Whether reducing neuronal insulin/IGF-1 signaling in mammals extends their life-span remains to be established. We are currently developing animal models in order to determine whether neuronal insulin signaling plays a role in regulating mammalian longevity and aging.
Linda M. McManus, Ph.D.

Education
Ph.D., the University of Colorado Medical School
Postdoctoral fellow, University of Texas Health Science Center at San Antonio

Positions
Distinguished Teaching Professor, Departments of Pathology and Periodontics
Co-Director, Masters of Science in Clinical Investigation (MSCI) Program
Co-Director, Research Education, Training, and Career Development Key Function, CTSA, UTHSCSA
Co-Director, Translational Science Training (TST) Scholar Program
Director, Institutional National Research Service Award (T32), Pathobiology of Occlusive Vascular Disease

Honors
Omicron Kappa Upsilon (OKU), Elected to Honorary Membership
Academy of Master Teachers (AMT), UT Health Science Center, San Antonio, TX
Commander’s Coin for Excellence, United States Army, Institute for Surgical Research, San Antonio Military Medicine (SAMM), San Antonio, TX
Academy of Health Science Education (AHSE), University of Texas System

Research Credentials
- Inflammation in tissue injury and disease
- Myogenic precursor cells
- Immunohistochemistry and histomorphometry
- Skeletal muscle regeneration
- Sarcopenia of Aging
Nicolas Musi, M.D.

Medicine
Professor of Medicine
Director, Barshop Institute for Longevity and Aging Studies
Director, Center for Healthy Aging
Director, San Antonio Geriatric, Research, Education, and Clinical Center, South Texas Veterans Health Care System, San Antonio

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Education
Medicine, Universidad Anahuac, Mexico City
Internal Medicine, University of Miami
Endocrinology and Metabolism, Harvard Medical School
Postdoctoral Fellow, Joslin Diabetes Center-Harvard Medical School

Positions
Professor of Medicine, UTHSCSA
Director, Barshop Institute for Longevity and Aging Studies
Director, Center for Health Aging
Director, GRECC, STVHCS
Associate Director for Clinical Research, Texas Diabetes Institute

Honors
Magna Cum Laude, Universidad Anahuac
Outstanding Resident Award, American College of Physicians
Junior Faculty Award, American Diabetes Association
Paul B. Beeson Career Development Award, American Federation for Aging Research

- Molecular Biology of Insulin Action
- Molecular Basis of Insulin Resistance in Aging
- Pathophysiology of Sarcopenia
- Cellular Effects of Exercise in Muscle
James F. Nelson, Ph.D.

Physiology Professor
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Education
Ph.D., University of Southern California

Positions
Director, San Antonio Nathan Shock Center Aging Animal and Longevity Assessment Core

Honors
Ellison Senior Scholar—Biology of Aging
Chair, Gordon Conference on Biology of Aging
Chair, Biological Sciences Section, Gerontological Society of America

Research
- Mechanisms of longevity extension by diet restriction
- Role of stress resistance and glucocorticoids
- Role of insulin signaling
- Role of visceral adiposity modulation
- Role of genetic modulation and mechanisms
- Mechanisms of longevity extension in EtOH tolerant mice
- Genetic dissection using recombinant inbred mice and QTL mapping
- Role of insulin signaling and adiposity modulation
- Role of oxidative stress resistance
- Use of pharmacological interventions to probe mechanisms of aging

Mice selected for EtOH tolerance live 25% longer than mice selected for intolerance to EtOH.
The human Toll-like receptors (TLRs) and their known ligands. *S. pneumoniae* initiates inflammation through sensors known as TLR-2 and TLR-4. Bacterial cell wall products such as peptidoglycan and teichoic acid bind to LBP (lipopolysaccharide binding protein, which binds to CD14, and binds to TLR-2. Pneumolysin binds to TLR-4. TLR activation initiates an intracellular signaling cascade ultimately resulting in NFκB activation and production of pro-inflammatory cytokines such as TNFα.

Increased susceptibility of the elderly to pneumonia through
- Priming effect of age-associated inflammation
- Age-associated TLR dysfunction
- Bacterial expression of serine-rich repeat proteins (SRRPs)
- SRRP-mediated binding to senescent lung cells
Using transgenic and knockout approaches to dissect mechanisms of oxidative stress in aging and pathogenesis of diseases such as Alzheimer’s disease.
Hai Rao, Ph.D.

Education
Ph.D., the Cold Spring Harbor Laboratory & State University of New York
Postdoctoral fellow, the California Institute of Technology

Positions
Assistant Professor, Dept. of Molecular Medicine & Institute of Biotechnology
Course Director of Molecular Medicine

Honors
The American Association for Cancer Research Minority-Serving Institution
Faculty Scholar Award in Cancer Research
Scholarship from Leukemia and Lymphoma Society of America

- Amino acid sequences of prion PrP that trigger its degradation.
- The degradation of UBB(+1), a protein often accumulated in Alzheimer’s diseases.
- Novel proteins involved in aging process:
  - Identification of aging factors via genome-wide screens.
  - Biochemical and molecular analysis of proteins involved in protein quality control.

Localization of human prion protein PrP in wild-type and hrd1 mutant cells. Failure of PrP degradation in hrd1 mutant leads to the accumulation of PrP in yeast. Function of protein degradation in neurodegenerative diseases enzymes responsible for targeting prion protein PrP to the proteasome for degradation.
Shane L. Rea, Ph.D.

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Education
Ph.D., University of Queensland, Australia
Postdoctoral fellow, McGill University, Canada
Postdoctoral fellow, University of Colorado (Boulder), USA

Positions
Assistant Professor, Department of Physiology
Faculty Member, Barshop Institute for Longevity and Aging Studies

Honors
Polis Foundation Fellow
Ellison Medical Foundation New Scholar
AFAR New Investigator Award

Research

Fundamental Mechanisms of Aging
Metabolomics
Genetics
Bioenergetics
Systems Biology
Novel Signaling Pathways

Model Organisms
Caenorhabditis elegans
Saccharomyces cerevisiae
Mouse Fibroblasts

Research Projects
C. elegans Mit Mutants
S. cerevisiae and Barth Syndrome
Checkpoint Proteins and Worm Aging
Modeling aging in silico

A novel fluorescent reporter marks which C. elegans is going to live longest in a population.
Vivienne Rebel, M.D., Ph.D.
Cellular & Structural Biology
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Education
M.D., the Free University of Amsterdam (The Netherlands)
Ph.D., Free University of Amsterdam (The Netherlands) in association with The Terry Fox Laboratory (Vancouver, Canada)
Postdoctoral fellow, Dana-Farber Cancer Institute, Harvard Medical School

Positions
Course Director for Stem Cell Biology

Research

Normal and leukemic hematopoiesis
- Mouse models
- Fetal liver and adult bone marrow of various ages

Transcriptional regulatory networks that control the balance between self-renewal and differentiation in stem cells
- Cell-intrinsic
- Microenvironment mediated
- The differences between normal and leukemic stem cells
- Influence of aging on stem cell regulatory processes
Arlan Richardson, Ph.D.

Founding Director
Barshop Institute for Longevity and Aging Studies
Professor of Cellular & Structural Biology
Senior Research Career Scientist, STVHCS
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Education
Ph.D., Oklahoma State University
Postdoctoral fellow, the University of Minnesota

Positions
Founding Director, Barshop Institute for Longevity and Aging Studies
Professor of Cellular and Structural Biology
Senior Research Career Scientist, South Texas Veterans Health Care System

Honors
Distinguished Professor, Illinois State University
The Nathan Shock Award from the Gerontological Research Center, National Institute on Aging
Robert W. Kleemeier Award for Outstanding Research, Gerontological Society of America
Ellison Medical Foundation Senior Scholar Award
Identified by Columbia researchers as in top 5% of NIH funding over the past 25 years, 2004
Method to Extend Research in Time (Merit), NIH-NIA
Irving Wright Award of Distinction from the American Federation for Aging Research
Lord Cohen Medal for Services to Gerontology the British Society for Research on Aging
UTHSCSA Presidential Distinguished Senior Scholar Award, 2010
Faculty Leadership Award from the University of Texas Health Science Center Faculty Senate, 2010

Mouse liver proteome as shown by 2-dimensional gel electrophoresis

Using transgenic and knockout mice to study the effect of the following on aging and age-related diseases:
- Oxidative damage to proteins
- Alterations in mitochondria function
- Nutrient signaling
- Protein aggregation and degradation
Molecular Medicine
Professor
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(210) 567-7226
Departmental Website:
http://molecularmedicine.uthscsa.edu/FAC_Profile.aspx?facID=43

Education
Ph.D., the University of Arkansas for Medical Sciences
Postdoctoral fellow, Rice University

Positions
Professor of Molecular Medicine
Co-Director, Genomic Integrity and Tumor Development Program, CTRC/UT Health Science Center at San Antonio

Honors
Who’s Who in American Colleges and Universities
Presidential Award for Excellence in Teaching, UT Health Science Center at San Antonio
Special National Research Projects: National Institutes of Aging Intervention Testing Program. “Inhibitors of mammalian TOR to increase life span” (Role: Sponsor)
Mprize Lifespan Achievement Award from the Methuselah Foundation, New York City

Another major research focus of our laboratory is the Target of Rapamycin in aging.
Paula K. Shireman, M.D.

Surgery
Professor
Vice Dean for Research
School of Medicine, UTHSCSA
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Departmental Website:
http://surgery.uthscsa.edu/shiremanlab/

Education
M.D., Indiana University School of Medicine
General Surgery Residency at Northwestern U Medical School
Postdoctoral research training at both Northwestern and Loyola Medical Schools
Vascular Surgery Fellowship at Loyola U Medical Center

Positions
Member, National Research Committee, American Heart Association (AHA)
Chair, Research Committee, AHA, South West Affiliate
Board Member, AHA, South West Affiliate
Research and Education Committee, American Vascular Association

Honors
2004 Presidential Junior Research Scholar Award, UTHSCSA
Dielmann Chair in Surgery

Regenerated muscle fiber (green) with a centrally located nucleus (blue) derived from a GFP+ bone marrow cell

Skeletal muscle regeneration and tissue engineering
- contribution of bone marrow-derived stem cells
- contributions of macrophages
- differentiation of myogenic progenitor cells
- angiogenesis impairments with aging
- sarcopenia of aging
- stem cell defects with aging
- microRNA regulation of muscle regeneration and macrophage polarization
In our lab we study the structures and mechanisms of 2 classes of proteins whose activities are directly tied to cellular energy metabolism and to proteostasis (the maintenance of the structural integrity and health of the proteome). These 2 protein classes are the single-subunit RNA polymerases, of which the mitochondrial RNA polymerase is the most widespread member, and the molecular chaperones.

Recent representative publications:

Randy Strong, Ph.D.
Pharmacology and the Barshop Institute
Professor
strong@uthscsa.edu
(210) 562-6126
(210) 617-5197 (VA Hospital)
Departmental Website:
http://pharmacology.uthscsa.edu/faculty/Strong.asp

Education
Ph.D., the University of Texas Health Science Center at Houston
Postdoctoral fellow, St. Louis University School of Medicine and VA

Positions
Director, NIA-Aging Interventions Testing Center
Core Leader, Healthspan & Functional Assessment Core, San Antonio Nathan Shock Center for Excellence in the Biology of Aging
Co-Director, VA Neurodegeneration Research Center

Honors
Member: Cell Development and Function-2 Study Section
Editorial Board, Experimental Biology and Medicine
American Federation for Aging Research, National Scientific Advisory Council Member
VA Research Career Scientist Award

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• Pharmacological intervention in the aging process
• Mechanisms of neurodegeneration in Parkinson’s disease
• Glucocorticoid regulation of adrenergic gene expression in age-related diseases
• Role of early life stress in post-traumatic stress disorder (PTSD)
LuZhe Sun, Ph.D.

Cellular and Structural Biology
Professor
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Departmental Website:
http://www.uthscsa.edu/csb/faculty/sun.asp

Education
Ph.D., Rutgers University and UMDNJ-Robert Wood Johnson Medical School
Postdoctoral training, Baylor College of Medicine

Positions
Associate Director for Translational Research at CTRC

Honors
Dielmann Endowed Chair in Oncology

My laboratory studies molecular mechanisms that regulate cancer development, growth, invasion, and metastasis using molecular and cellular biology techniques and animal model systems. There are several ongoing research projects in my laboratory. One project involves the investigation on how aging, obesity, radiation, and xenoestrogens may affect the function and susceptibility to transformation of mammary stem cells. We are interested in how mammary stem cells may be transformed to initiate tumorigenesis and how this can be prevented. The second project involves the investigation of the paradoxical tumor-suppressing and tumor-promoting roles of transforming growth factor beta (TGFβ) signaling in various types of cancer. The third project involves the investigation of how androgen signaling may collaborate with hedgehog signaling in promoting the development of castration resistant prostate cancer. We are interested in developing combinatorial therapeutic approaches in targeting both androgen and hedgehog signaling pathway for the treatment of castration resistant prostate cancer.

Organoids    Regenerated mammary glands    DCIS

Murine mammary stem cell-formed organoids *in vitro* and -regenerated mammary gland *in vivo*, and formation of ductal carcinoma in situ (DCIS) by an old mammary stem cell in its regenerated mammary gland.
Suzette Tardif, Ph.D.

Cellular & Structural Biology and the Barshop Institute
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Education
B.S., Zoology from University of Oklahoma
Ph.D., Zoology from Michigan State University

Positions
Course Leader, Biology of Aging Track
Faculty, Barshop Institute for Longevity & Aging Studies
Adjunct Scientist, Southwest National Primate Research Center
Departmental Animal Research Officer, Barshop Institute

Honors
President, American Society of Primatologists

Marmosets are small nonhuman primates with a relatively short life span, making them ideal for studies of primate developmental programming and aging.

Development of small nonhuman primates as models for:
- obesity & metabolic disorders
- developmental programming
- aging, with an emphasis on frailty
The primary focus of my research is to study the relationship between oxidative damage and aging using transgenic and knockout mouse models, with a particular emphasis on the effect of oxidative stress on mitochondrial function in loss of skeletal muscle during aging. My laboratory has studied mitochondrial function during aging in a variety of transgenic and knockout models and my research has shown that lifespan is not altered in several mouse models with compromised antioxidant defense; data that do not support the long standing Oxidative Stress Theory of Aging. These studies suggest that oxidative stress is critically important in age-related disease, but may not be the major factor underlying aging, per se. My current studies focus on the role of oxidative stress and pro-inflammatory pathways on age-related muscle atrophy and in the neurodegenerative disease ALS. I am also studying the role of mitochondria in maintaining the neuromuscular junction and muscle innervation during aging.
Christi A. Walter, Ph.D.

Cellular & Structural Biology
Professor and Chair
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Departmental Website:
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Education
B.S. in Biology, Rockhurst College
Ph.D. in Cell Biology, Florida State University
Postdoctoral fellow, UT MD Anderson Cancer Center

Positions
Professor and Chair, Department of Cellular & Structural Biology
Adjunct Professor, Department of Clinical Laboratory Sciences
Health System Scientist, South Texas Veteran’s Health Care System
Co-Director, Stem Cell Core

Honors
2007  Faculty Senate Administration Leadership Award
2008  Texas Genetics Society Distinguished Service Award

Research credentials
• Spermatogonial stem cells in the paternal age effect
• DNA repair and mutagenesis in aging
• Mitochondrial DNA damage and aging
• Age-related hepatocellular carcinoma
Pei Wang, Ph.D.
Graduate School of Biomedical Sciences
Cellular and Structural Biology
Assistant Professor
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Education
Ph.D., Department of Cellular Biology, Baylor School of Medicine
Postdoctoral fellow, Developmental Biology, Stanford University School of Medicine and Howard Hughes Medical Institute

Positions
Assistant Professor, Department of Cellular and Structural Biology, UTHCSA

Honors
Texas Rising Star Award, First-Time, Tenure-Track Recruitment Faculty Member, UTHCSA

Research
Pancreatic ductal adenocarcinoma (PDAC) is a solid tumor characterized by aggressive local invasion, early metastasis, and resistance to conventional chemotherapy or radiation. Further complicating the study of PDAC is the inaccessibility of the pancreas - pancreatic biopsy is extremely rare and risky, so little is known about precursor lesions. Thus, recapitulating the pathogenesis of PDAC in vitro will allow us to develop effective methods to detect early molecular changes for diagnosis and to generate a platform for drug discovery. The immediate goals for are:

1. to understand the basis for tumor heterogeneity,
2. to establish methods for drug screening using genetically engineered human ductal cells,
3. to identify tumor initiating cells (TICs), and
4. to characterize the molecular properties of TICs.

The long-term goals are to identify markers and methods for early diagnosis of PDAC and to inform the development of effective therapeutic strategies.

The other interest of my lab is to generate insulin-producing cells and liver cells from human embryonic stem cells (hESCs) and induced pluripotent stem cells (iPSC) for modeling disease and for cell replacement therapies. We would establish a step wise differentiation protocol for hESCs and iPSCs. During the differentiation of hESCs into insulin producing beta-cells or liver cells, many intermediate cell stages exist. Therefore, the faithful production and purification of each intermediate cell type permits a more thorough assessment of cell identity and quality.
Chih-Ko Yeh, B.D.S., Ph.D.

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Education
BDS, Dental School, National Taiwan University, Taipei, Taiwan, R.O.C.
PhD, Oral Biology, University of Connecticut, Farmington, CT
Certificate, Oral Medicine, University of Connecticut, Farmington, CT
Staff Fellow, National Institute of Dental and Craniofacial Research, Bethesda, MD

Positions
Professor, Comprehensive Dentistry, Dental School
Geriatric Dentist/Senior Research Scientist, Geriatric Research, Education and Clinical Center,
Audie Murphy Division, South Texas Veterans Health Care System
Adjunct, the Sam and Ann Barshop Institute for Longevity and Aging Studies
Adjunct, Cellular & Structural Biology, Graduate School
Adjunct, The San Antonio Center for Medical Mycology, UTHSCSA, San Antonio, Texas

Honors
Diplomate, American Board of Oral Medicine (DABOM)
James A. Shannon Director’s Award, National Institute on Aging
Fellow (Clinical Medicine) of the Gerontological Society of America

Research

- Cellular Signals in Salivary Cell Growth and Physiology
- Effects of Age and Age-Related Diseases on Salivary Gland Function
- Signal Transduction and Gene Expression in Isoproterenol-induced Salivary Enlargement
- Salivary Stem Cell Identification for Tissue Restoration/Regeneration
- Development of Saliva-based Diagnostics
- Development of Anticandidal Denture Materials