The University of Tennessee Research Foundation is proud to recognize UT researchers whose innovations better society.

Welcome. .......................................................... Richard Magid, PhD
Vice President, UTRF

Chancellor’s Message. .............................. Steve J. Schwab, MD
Chancellor, UTHSC

Spotlight Presenter. .............................. Tao Lowe, PhD
Associate Professor, College of Pharmacy, Department of Pharmaceutical Sciences, UTHSC

Spotlight Presenter. .............................. Denis DiAngelo, PhD
Professor, College of Medicine, Department of Orthopaedic Surgery, UTHSC

Innovation Award Recognition. .................. Richard Magid, PhD & Lakita Cavin, JD, PhD
Vice President & Senior Staff Attorney, UTRF

- 2020 Maturation Grants
- Licensed Technologies
- Startup Awards
- Issued Patents

Special Recognition. .............................. Richard Magid, PhD
UTRF Vice President

Keynote Address. .............................. Duane D. Miller, PhD
Professor Emeritus, College of Pharmacy, Department of Pharmaceutical Sciences, UTHSC

Closing Remarks. .............................. Stacey S. Patterson, PhD
President, UTRF
Michio Kurosu  
In Vivo Evaluation of a Novel DPAGT1 Inhibitor, APPB, Using Patient-Derived Xenograft Models  
UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

Frank Park  
Cannabinoids and Kidney Injury  
UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

Jonathan Spagnoli, Jarrod Young, & Tim Jancelewicz  
An Ultrasoundable Extracorporeal Life Support Training Solution for Team Practices  
UTHSC College of Medicine, Department of Pediatric Surgery  
UTHSC – Simulation Center – CHIPS

Ryan Meacham, Jake Morris, Joseph Abou-Rahma, & Jake Spurlock  
Life Pen  
UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

L. Darryl Quarles, Zhousheng Xiao, & Charles Ryan Yates  
Novel FGF-23 Antagonist Determined by Virtual High-Throughput Screening  
Licensee: Inozyme Pharma, Inc.

Monica Jablonski & Mohamed Moustafa  
Microemulsions for Topical Delivery of Water Soluble Drugs  
Licensee: OculoTherapy, LLC

Kristen Archbold  
Maskless, Orally Retained, CPAP System with Nasal Pillows  
Licensee: Azimuth Sleep Solutions, Inc.

Bob Moore & Suni Moore  
Gem-Trifluoromethyl Analogs of SMM-295  
Licensee: Applied Biopharma, LLC

Duane Miller, Charles Ryan Yates, & Frank Park  
New Paxillin Inhibitors for Treatment of Polycystic Kidney Disease  
Licensee: Ipax Pharmaceuticals, LLC
Dr. Tao Lowe is currently an Associate Professor of Pharmaceutical Sciences and Biomedical Engineering at UTHSC. Previously, she was an Associate Professor of Pharmaceutical Sciences at Thomas Jefferson University, as well as an Assistant Professor of Surgery, Bioengineering, and Materials Science and Engineering, and Co-Director of the Integrated Graduate Degree Molecular Toxicology Program at Pennsylvania State University. She received her PhD with an Eximia Cum Laude from the University of Helsinki, Finland. She conducted two years’ postdoctoral research in the Chemical Engineering Department at University of Wisconsin, Madison.

Dr. Lowe’s research activities include design and development of multi-functional biomaterials for targeted and sustained drug and gene delivery, regenerative medicine, stem cell engineering, and biosensing for the diagnoses and treatments of eye and brain diseases, diabetes, cancers, bone fractures, and cartilage damages, as well as contraception. She has published many high impact peer-reviewed papers in leading biomaterial related journals including Biomaterials, Tissue Engineering, and Advanced Drug Delivery Review, etc. She currently holds eight issued U.S. and international patents. She has lectured extensively in academia, industry, and throughout the global scientific community. Her research has been supported by NIH, DOD, Coulter Foundation, and JDRF, etc. Her research activities have been recognized in the RSC’s Chemistry in Britain, Press Release of ARVO, and Feature Research in the “EURETINA-Brief” of European Association of Retina Specialists, etc.

Dr. Lowe has trained over 80 individuals who are/were postdocs, veterinary residents, and undergraduate, graduate, medical and pharmacy students, etc. She is a grant reviewer for over 90 study sections of NIH, NSF, DOD, EPA, USED, NSERC, ETHZ, etc. Dr. Lowe has served on the committees of a variety of professional societies including AAPS, BMES, SFB, ARVO, AIChE, ACS, and CRS, etc., and chaired over 35 sessions at international conferences. She was the Chair of the Biomaterials Area of American Institute of Chemical Engineers in 2010 and Past Chair/Co-Chair/Chair/Chair-Elect of the Nanotechnology Community of American Association of Pharmaceutical Scientists during 2014-2019. Dr. Lowe has achieved numerous honors and awards including Early Career Award in Translational Research from the Coulter Foundation.

Dr. Denis J. DiAngelo is a UTHSC Distinguished Professor of Biomechanics and Director of the BioRobotics and Rehabilitation Laboratory in the Department of Orthopaedic Surgery and Biomedical Engineering at UTHSC. His research has focused on the development of advanced robotic testing platforms that simulate how joints in the body move under different loading conditions. One such platform, the spine robot, was patented by UTRF and has been used to evaluate the biomechanics of the whole spinal system, including discs, ligaments, and muscles. This robot has opened opportunities for Dr. DiAngelo and his lab to do advanced testing and simulation with many medical device companies where they have managed more than 80 independent sponsored industry projects and have evaluated more than 130 different medical devices.

More recently, his graduate students have used the robotic testing platform to design and validate new bracing technology, including a pediatric scoliosis brace, a dynamic ankle orthosis, and an offloading back support device. He has received two UTRF Maturation Fund grants to develop the ankle and back support technology, and has filed patent applications through UTRF on all three devices. During the summer of 2017, he participated with his graduate students in a local medical device accelerator program, Zero to 510, which led to the establishment of startup company EMBrace Design based around their unique offloading and mobility enabling spinal orthosis.
LICENCED TECHNOLOGIES CONTINUED

**Issued Patents**

- **9,983,162**
  Method and Device for Detection of Bioavailable Drug Concentration
  *Edward Chaum, Erno Lindner, & Jidong Guo*
  UTHSC College of Medicine, Department of Ophthalmology

- **10,123,718**
  Methods, Systems, and Assemblies for Measuring Bioelectrical Signals of Intra-Abdominal Organs
  *Roger C. Young*
  UTHSC College of Medicine, Department of Obstetrics & Gynecology

- **10,155,728**
  Compounds for Treatment of Cancer
  *Wei Li, Duane D. Miller, Yan Lu, & James T. Dalton*
  UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

- **10,160,813**
  Tissue Plasminogen Activator Antibodies and Methods of Use
  *Guy Reed*
  UTHSC College of Medicine, Department of Medicine

- **10,258,596**
  Method of Treating Her2-Positive Breast Cancers with Selective Androgen Receptor Modulators (SARMS)
  *Ramesh Narayanan, James T. Dalton, Mitchell S. Steiner, & Sunjoo Ahn*
  UTHSC College of Medicine, Department of Medicine-Hematology

**Startup Awards**

- **Wei Li**
  Small Molecule MDM2 Degraders for Cancer Treatment
  Startup: SEAK Therapeutics, LLC

- **Kristen Archbold**
  Maskless, Orally Retained, CPAP System with Nasal Pillows
  Startup: Azimuth Sleep Solutions, Inc.
<table>
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<th>Patent Number</th>
<th>Title</th>
<th>Inventors</th>
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<tr>
<td>10,301,285</td>
<td>Compounds for Treatment of Cancer</td>
<td>Duane D. Miller, Wei Li, James T. Dalton, Jianjun Chen, Chien-Ming Li, &amp; Sunjoo Ahn</td>
<td>UTHSC College of Medicine, Department of Medicine-Hematology &amp;</td>
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<td>10,314,771</td>
<td>Methods and Compositions for Preventing and Treating Tooth Erosion</td>
<td>Mojdeh Dehghan, Daranee Versluis, &amp; Hassan Almoazen</td>
<td>UTHSC College of Dentistry, Department of General Dentistry &amp;</td>
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<td>10,314,797</td>
<td>Selective Androgen Receptor Degrader (SARD) Ligands and Methods of Use Thereof</td>
<td>Duane D. Miller, Ramesh Narayanan, Thamarai Ponnusamy, Dong-Jin Hwang, &amp; Yali He</td>
<td>UTHSC College of Medicine, Department of Medicine-Hematology &amp;</td>
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<tr>
<td>10,314,807</td>
<td>Method of Treating Her2-Positive Breast Cancers with Selective Androgen Receptor Modulators (SARMS)</td>
<td>Ramesh Narayanan, James T. Dalton, Mitchell S. Steiner, &amp; Sunjoo Ahn</td>
<td>UTHSC College of Medicine, Department of Medicine-Hematology</td>
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<td>10,369,133</td>
<td>Immunosuppressive Compounds and Therapeutics</td>
<td>Duane Miller, Charles Ryan Yates, Jayaprakash Pagadala, Ram Mahato, &amp; Hao Wu</td>
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<td>10,441,570</td>
<td>Selective Androgen Receptor Degrader (SARD) Ligands and Methods of Use Thereof</td>
<td>Ramesh Narayanan, Duane Miller, Thamarai Ponnusamy, Dong-Jin Hwang, Yali He, Jayaprakash Pagadala, Charles Duke, Christopher Coss, &amp; James T. Dalton</td>
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<td>10,450,610</td>
<td>Single Nucelotide Polymorphisms (SNP) and Association with Resistance to Immune Tolerance Induction</td>
<td>Arnold E. Postlethwaite &amp; Weikuan Gu</td>
<td>UTHSC College of Medicine, Department of Medicine-Rheumatology &amp;</td>
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<td>Department of Orthopaedic Surgery</td>
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<td>10,470,993</td>
<td>Tooth Remineralization Compositions and Methods</td>
<td>Liang Hong &amp; Linfeng Wu</td>
<td>UTHSC College of Dentistry, Department of Community Dentistry</td>
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Dr. Duane D. Miller is currently Professor Emeritus in the Department of Pharmaceutical Sciences at the University of Tennessee Health Science Center (UTHSC), Memphis, TN.

He obtained his BS degree in Pharmacy at Kansas University in 1966, and his interest in research was stimulated as a National Science Foundation Undergraduate Research Fellow. He was an NIH Fellow while at the University of Washington and obtained his PhD in Medicinal Chemistry in 1969. He next joined The Ohio State University Faculty in 1969, where he became Professor and Chairman of the Division of Medicinal Chemistry and Pharmacognosy in 1982.

He moved to the University of Tennessee Health Science Center, Memphis, TN, in 1992 and was the Van Vleet Endowed Chair and Professor. Dr. Miller has published over 430 publications, has 16 book chapters, has given 360 presentations at national and international meetings, and has over 400 patents and patent applications. Dr. Miller along with Dr. Jim Dalton discovered the first new nonsteroidal selective androgen receptor modulators (SARMs) and reported on them in 1998. His recent research has focused on discovery and development of new agents for unmet medical conditions such as resistant prostate cancer, inflammation, breast cancer, and advanced melanoma. He was inducted into the National Academy of Inventors in 2015 and is being honored at the 2019 UTRF Innovation Awards Ceremony for the receipt of his 100th U.S. patent.
UTRF Health Science Center FY 2019 Metrics

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License Revenue $498,000

Thank you!