UT RESEARCH FOUNDATION

2019 INNOVATION Awards

DECEMBER 5, 2019

UTHSC Student Alumni Dining Hall

11:00 AM - 1:00 PM

Where Discovery and Opportunity Connect

2019 INNOVATION Awards

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 2020 Maturation Grants Licensed Technologies Startup Awards Issued Patents	**Richard Magid, PhD & Lakita Cavin, JD, PhD** *Vice President & Senior Staff Attorney, UTRF*
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*

2020 Maturation Grants

UT RESEARCH FOUNDATION
TECHNOLOGY MATURATION GRANT

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

Licensed Technologies

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

Spotlight Presenters

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 biosensoring 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 serviced 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.

Duane Miller, Gabor Tigyi, Renuka Gupte, & Renukadevi Patil

Benzyl and Naphthalene-Methyl Phosphonic Acid Inhibitors of Autotaxin with Anti-Invasive and Anti-Metastatic Actions

Licensee: Cayman Chemical

Lawrence Pfeffer & Chuan Yang

P65gst Fusion Protein Construct

Licensee: Ximbio

Marko Radic

Anti-Apoptosis Autoantibody and 3H9 Autoantibody

Licensee: Ximbio

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.

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

10,301,285
Compounds for Treatment of Cancer

Duane D. Miller, Wei Li, James T. Dalton, Jianjun Chen, Chien-Ming Li, & Sunjoo Ahn
UTHSC College of Medicine, Department of Medicine-Hematology & UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

10,314,771
Methods and Compositions for Preventing and Treating Tooth Erosion

Mojdeh Dehghan, Daranee Versluis, & Hassan Almoazen
UTHSC College of Dentistry, Department of General Dentistry & UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

10,314,797
Selective Androgen Receptor Degrader (SARD) Ligands and Methods of Use Thereof

Duane D. Miller, Ramesh Narayanan, Thamarai Ponnusamy, Dong-Jin Hwang, & Yali He
UTHSC College of Medicine, Department of Medicine-Hematology & UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

10,314,807
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

10,369,133
Immunosuppressive Compounds and Therapeutics

Duane Miller, Charles Ryan Yates, Jayaprakash Pagadala, Ram Mahato, & Hao Wu
UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

10,441,570
Selective Androgen Receptor Degrader (SARD) Ligands and Methods of Use Thereof

Ramesh Narayanan, Duane Miller, Thamarai Ponnusamy, Dong-Jin Hwang, Yali He, Jayaprakash Pagadala, Charles Duke, Christopher Coss, & James T. Dalton
UTHSC College of Medicine, Department of Medicine-Hematology & UTHSC College of Pharmacy, Department of Pharmaceutical Sciences

10,450,610
Single Nucelotide Polymorphisms (SNP) and Association with Resistance to Immune Tolerance Induction

Arnold E. Postlethwaite & Weikuan Gu
UTHSC College of Medicine, Department of Medicine-Rheumatology & Department of Orthopaedic Surgery

10,470,993
Tooth Remineralization Compositions and Methods

Liang Hong & Linfeng Wu
UTHSC College of Dentistry, Department of Community Dentistry

Keynote Speaker

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.

Congratulations Dr. Miller!

Thank you!

UTRF Health Science Center FY 2019 Metrics

Invention Disclosures	Licenses & Options	U.S. Patents Filed	U.S. Patents Issued	Startups
33	2	34	15	1

License Revenue **$498,000**

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