In the Summer edition of *The Research Rainmaker*, we outlined some of the early wins that have been achieved in just one short year since the Operational Strategic Plan for Research was approved and implemented. One area the UTHSC Office of Research is striving to further support is entrepreneurial ventures. We recognize that our faculty are a powerhouse of ideas that often produce discoveries suitable for intellectual property (IP) development. Toward this end, the Office of Research developed a platform designed to support faculty researchers in their entrepreneurial ventures.

In October, we announced a partnership with the Memphis Bioworks Foundation to provide a dedicated Innovation Lab for our research faculty in the Memphis Bioworks building. We made a 420 square-foot turnkey space available for up to 12 months, at no cost to researchers, as they develop their IP in anticipation of submitting an SBIR and/or STTR proposal. During the 12-month period of occupancy, researchers will have access to standard lab equipment (e.g., tissue culture hood), services, as well as consulting. New companies using the Innovation Lab will be required to submit at least one SBIR and/or STTR grant application during the year of occupancy.

The partnership is pleased to announce Monica M. Jablonski, PhD, Professor of Ophthalmology, has been selected as the first user of the Innovation Lab space. Dr. Jablonski has successfully prepared, optimized and characterized an extended release, multilayered, bioadhesive, topical microemulsion-based formulation for delivery of hydrophilic drugs to the posterior pole of the eye. The microemulsion was created to combat the shortcomings traditionally linked to standard eye drops.

“Our microemulsion is designed to overcome the drawbacks associated with traditional eye drops that include rapid drainage, short corneal contact time and minimal corneal penetration, all of which lead to reduced efficacy and poor patient compliance,” said Dr. Jablonski. “The availability of the UTHSC Innovative Incubator space will allow us to focus on further developing this formulation so that we can increase our chances of success in obtaining SBIR or STTR funds from NIH. In addition, the business development mentoring that is also provided with the lab space will be invaluable to us as we navigate through the business world. I am honored to have been selected.”

Glaucoma affects more than 3 million people in the United States and accounts for over 10 million visits to physicians each year. Researchers predict that with the increased longevity of the US population, the number of people affected by Glaucoma could increase to 6.3 million by 2050. Dr. Jablonski anticipates that her technology will have a large impact on the treatment of ophthalmic diseases as the novel therapeutic can reach deep into the eye, delivering anti-glaucoma agents to hard-to-reach target cells.

“There are currently drugs on the market to treat various conditions of the eye,” said Dr. Jablonski. “However, a drug cannot effectively treat a disease if it can’t reach its target tissue, which is often deep within the eye. This causes a problem because the eye has developed multiple barriers for keeping molecules, bacteria, and other foreign bodies out. We have developed a method for delivering drugs to the cells deep within the eye using topical delivery. We predict that our formulation can be coupled with many drugs and can be used to treat various diseases such as glaucoma, and age-related macular degeneration, to name a few.”

Gabor Tigyi, PhD, associate vice chancellor for Research and Industry explains he is encouraged by the research Dr. Jablonski will be doing while in the Innovator Lab Space, and looks forward to seeing her successfully move her idea to market and make a difference for people suffering with glaucoma.

“The review panel of the Innovation Incubator application were very excited about the prospects of the application ‘Novel Once Daily IOP Lowering Formulation’ submitted by OculoTherapy, LLC,” said Dr. Tigyi. “This new drug formulation the company is developing has a market potential that could reach in the hundreds of millions of dollars.”
The Research Rainmaker

Meet UTHSC’s New Entrepreneur-in-Residence
Chris West

In later summer 2017, UTHSC in partnership with the University of Tennessee Research Foundation (UTRF) welcomed the first Entrepreneur-in-Residence (EIR) Chris West. The EIR position is a shared resource between Memphis Bioworks Foundation and UTRF designed to support innovative research teams and their entrepreneurial ventures in Memphis and throughout the state.

Chris comes to UTHSC with over 20 years of experience in marketing and executive sales for the pharmaceutical and biotech industries. He has managed both sales and marketing teams in the successful launch of multiple products and initiatives for companies such as Warner-Lambert, GlaxoSmithKline and Warner Chilcott.

As the new EIR, Chris is working with UTHSC researchers to help translate their research innovations into commercial products or startup companies. He has already assisted several UTHSC researchers with the development of their research innovations, working directly with them to further develop their ideas to ultimately address real patient needs.

“The purpose of my job is to help UTHSC’s inventors commercialize their ideas,” said Chris. “With them, I help to build plans and connect them with the resources they need to be successful in the marketplace.”

In addition, Chris will be part of the review process for the UTRF Maturation Grants, an annual seed funding program designed to advance technologies with commercial potential. He will focus on pharmaceuticals, biotechnology, and medical devices. Chris will also lead the ZeroTo510 Medical Device Accelerator under the Memphis Bioworks Foundation.

Funding for the new EIR comes from the i6 Challenge Award given by the U.S. Economic Development Administration through their Regional Innovation Strategies program to UTHSC in partnership with Memphis Bioworks Foundation and UTRF in 2016. The award is also helping to expand the CORNET Awards program and the UTRF Maturation Grants.

These three initiatives working jointly together are a part of the new Proof-of-Concept Center at UTHSC. Located in Memphis, the Center will help connect innovative UTHSC medical researchers and their technologies to businesses and entrepreneurial expertise via Memphis Bioworks Foundation. Additionally, with the assistance of UTRF, the Center will work to offer novel solutions for regional health challenges, and create jobs and economic development within the region and state. Chris will play a key role in supporting UTHSC’s innovative teams at the Proof-of-Concept Center.

When asked about his favorite part of the job so far, it is “working with UTHSC’s researchers.”

“They are all very creative, talented and passionate about their project,” said Chris. “It’s contagious. I really feel invested because they are so passionate about their idea and the patients they are trying to help.”

To schedule a meeting with Chris, please contact the UTRF Health Science Center Office at 901-448-7827 or submit your inquiry via the UTRF website: https://utrf.tennessee.edu/contact/.

Subscribe to the UTHSC Researchers Listserv!
The Office of Research recently established a new e-mailing list specifically geared toward all research Faculty, Post Docs, and Graduate Students at UTHSC. We plan to use this new method of communication to let the UTHSC research community know of important events, workshops, opportunities, news, etc. that specifically pertains to them.

To subscribe to the Researchers e-mailing list, please visit http://listserv.uthsc.edu/mailman/listinfo/researchers and follow the subscription instructions.
Dr. Glen Palmer Receives First UTHSC/Southern Research CORNET Award

In early Fall 2017, the Office of Research Development announced a new Collaborative Research Network (CORNET) Award opportunity for UTHSC Researchers. The new UTHSC/Southern Research (SR) CORNET Award in Drug Discovery and Development was designed to launch drug discovery programs that are based on new and unique biology of disease that will fill significant unmet medical needs.

The collaborative award, an extension of a program launched in 2016 by Vice Chancellor for Research Steven R. Goodman, PhD, links the drug discovery and development expertise of Birmingham-based Southern Research with UTHSC’s four-campus research network. To-date, the CORNET Awards program has provided over $1.1 million in funding to promising university research teams.

Glen E. Palmer, PhD, an Associate Professor in the College of Pharmacy, was selected to receive the first jointly-funded UTHSC/SR CORNET Award. Dr. Palmer was awarded $50,000 per year for up to two years, with funding for year two dependent upon progress made in year one. His project is targeting the development of an entirely new class of antifungal medications to combat a range of invasive fungal infections, which are blamed for an estimated 1.5 million deaths a year.

Dr. Palmer’s research project titled, “Targeting the Aromatic Amino Acid Synthesis Pathway to Develop a New Class of Broad Spectrum Antimicrobial Agents,” aims to develop first-in-class broad-spectrum antimicrobial agents for the treatment of what are often fatal invasive fungal infections. These infections are a serious and growing global health problem, with mortality rates often exceeding 50 percent for many fungal pathogens. Disturbingly, some of these pathogens are developing resistance to the antifungal drugs now in use.

“Mortality rates associated with invasive fungal infections have remained alarmingly high, as many of the antifungal drugs currently available are ineffective in treating these infections, or in some cases themselves are toxic to the patients,” said Dr. Palmer. “Over the last few years, my lab has devised some novel approaches to discover new antimicrobial compounds. The collaborative effort between UTHSC and SR will provide a framework with the resources needed to apply these methods on a scale at which they can have a real impact. Additionally, it will bring the know-how and experience needed to progress the experimental therapeutics we discover towards new and improved drugs to ultimately improve the prognoses of patients with life-threatening invasive fungal infections.”

Dr. Palmer will be able to take advantage of the shared resources of SR and UTHSC to facilitate drug discovery and development efforts aimed at any disease. SR and UTHSC will jointly own intellectual property resulting from projects receiving support from the program. Outside partners will be sought for clinical development and commercialization when projects reach an advanced stage.

“I want to congratulate Dr. Glen Palmer on being our first UTHSC/SR CORNET Award recipient and a second-time CORNET awardee,” said Dr. Goodman. “The UTHSC/SR CORNET Award is focused on drug discovery and development for any human disease. We are hopeful that Dr. Palmer’s exciting work and our partnership with Southern Research will lead to a new class of medications against invasive fungal infections.”

When asked about his overall impression of the CORNET Awards program, Dr. Palmer praised the initiative for rousing the research community at UTHSC and spurring new collaborative partnerships, both internally and with external universities and institutions.

“The CORNET awards are a very exciting program that has helped energize the research community at UTHSC,” said Dr. Palmer. “It has already spawned an impressive set of new research consortium at UTHSC, and opened a whole new set of possibilities and opportunities that were perhaps not immediately apparent before its initiation. Each collaborative arrangement has leveraged the existing expertise present at UTHSC to generate entirely new research programs, not just individual grant applications. The CORNET program provides a melting pot to forge new lines of investigation, and it is that innovation that drives high impact medical research.”
Research, Entrepreneurship, and Commercialization

In early November, UTHSC announced a new collaborative partnership with Memphis Bioworks Foundation and TriMetis Life Sciences. The partnership surrounds the recent addition of Steve Bares, PhD, president and executive director of Memphis Bioworks, and Phil Cestaro, president and CEO of TriMetis Life Sciences, to the Office of Research Leadership Team. The pair are charged with further developing an entrepreneurial culture at UTHSC, working in close collaboration with the University of Tennessee Research Foundation (UTRF).

As the new associate vice chancellor of Research and Entrepreneurship, Dr. Bares brings to the Office of Research team over 30 years of business entrepreneurship experience and holds 10 patents. Dr. Bares’ responsibilities at UTHSC include developing training programs/seminars on intellectual property development, patent filing, marketing of IP and the nuts-and-bolts of launching startup companies. In his short time at UTHSC so far, Bares has already helped to create the Office of Research’s new UTHSC LEADS (Launching Entrepreneurial Activities and Discovery in Science) seminar series. The series is designed to bring successful and engaging entrepreneurial scientists involved in biotech, life sciences, Pharma and device sectors to UTHSC so that they may relay their “entrepreneurial stories” to our faculty, staff, and students. Specifically, UTHSC LEADS focuses on speakers who have taken an idea from “bench-to-bedside”, connecting research done in the laboratory to develop new ways to treat patients.

“Our first LEADS seminar in later October featured the very successful businessman and entrepreneur Dr. Samuel E. Lynch, current Chairman and CEO of Lynch Biologics, LLC,” said Dr. Bares. “Dr. Lynch hosted a compelling conversation with a packed auditorium on the successes and struggles of moving research from ‘Benchtop to Bedside’. The amount of positive feedback and interest we received is the fire I am aiming to foster in my new appointment.”

Dr. Bares has also been working with faculty to support them as they apply for SBIR and STTR grants. Working in close collaboration with UTRF Vice President Richard Magid, PhD, his knowledge and expertise has already proven useful for several faculty.

“Faculty enthusiasm for entrepreneurship has always been strong at UTHSC,” said Dr. Magid. “Steve and Memphis Bioworks are helping UTHSC and UTRF convert that enthusiasm into achievement. We expect to see more startups created, and success from those startups at raising capital via SBIR/STTR grants and the investment community.”

Dr. Bares and Phil Cestaro worked closely with Dr. Magid, Vice Chancellor for Research Steve Goodman, PhD, and Associate Vice Chancellor for Research and Industry Relations Gabor Tigyi, PhD, to create the UTHSC Innovation Lab which provides entrepreneurial UTHSC faculty with laboratory and office space for their spin-off companies at no charge to the faculty member for a full year.

“The UTHSC Operational Strategic Plan for Research called for the establishment of low cost space that would allow entrepreneurial faculty to write SBIR and STTR grants to support their spin-off
companies,” said Dr. Goodman. “The UTHSC Innovation lab, which is supported jointly by the UTHSC Office of Research and Bioworks, provides this space at no cost to faculty based on a competitive application and review process. This is a unique and innovative program that demonstrates the power of academic-industry partnerships.”

Monica M. Jablonski, PhD, Professor of Ophthalmology, was selected as the first user of the Innovation Lab space. More on Dr. Jablonski’s project can be found in the pages of this edition of The Research Rainmaker.

Phil Cestaro has taken on the new role of associate vice chancellor of Research and Business Development. With a focus on external research opportunities with pharmaceutical, biotech, and medical device companies, Phil has more than 20 years of executive-level experience growing start-ups from foundation to over $100 million in value.

At UTHSC, Cestaro helped to write the business plan for the newly established Clinical Trials Network of Tennessee (CTN2). He will direct CTN2, create a centralized budgeting and contracting process, and provide business oversight for this 501(c) (3) wholly-owned subsidiary of UTRF. Cestaro is also charged with bringing external industry users for our Institutional Research Cores. These external users help us maintain lower prices for our internal UTHSC faculty.

“The research enterprise is actively growing at UTHSC,” Cestaro said. “I am excited to help UTHSC faculty maximize their impact on the community by pairing them with the companies and resources they need to be successful.”

Sponsored Programs

Also in November, the Office of Research welcomed Sarah J. White, MA, Ed.M., as the new associate vice chancellor for Research in the Office of Sponsored Programs. In White’s new role, she will lead the merger of all existing pre- and post-award functions, providing leadership, support and strategic direction for all sponsored programs administration. White brings over 20 years of sponsored programs experience to UTHSC. Prior to her current role, White served as the Associate Vice President for Research Administration at Augusta University, (formerly Medical College of Georgia) and Executive Director at Augusta University Research Institute, Inc. where she managed the Division of Sponsored Programs.

“I love my work because the passion and energy that the researchers bring to their work is infectious,” said White. “This is an exciting time for research at UTHSC and I am committed to working with administration, faculty and staff to clarify, streamline, and improve processes related to the administrative aspects of securing and managing extramural funding. I believe that the strategic goals for research are achievable, and am looking forward to working with Drs. Goodman and Youngentob to help move the research enterprise forward.”

White will meticulously work towards the “overarching goal of developing a seamless, efficient, and transparent infrastructure that fully supports the research mission of the UTHSC,” said Steve Youngentob, PhD, senior associate vice chancellor for Research.

As Dr. Goodman points out in his Message from the Vice Chancellor for Research in this edition of The Research Rainmaker, “The leader must be able to articulate a clear and sensible vision and chart a path towards shared goals.” With each of these additions to the Office of Research team, we move one step further in our plan to systematically strengthen and grow the research enterprise at UTHSC. Please join the Office of Research as we welcome Steve, Phil, and Sarah to the UTHSC family.
The Research Rainmaker

Researcher Spotlight:
Graduate Student Jessica Baker

Third-year College of Graduate Health Science student Jessica Baker, BS, was recently selected as a recipient of a National Institutes of Health award for her project titled, “Evaluation of the Genetic Contribution of the Neuroinflammatory Response Following Neonatal Alcohol Exposure.”

The fellowship award will support Baker’s work as a neuroscience student where she focuses on the effects of alcohol syndrome on the brain.

“Fetal alcohol spectrum disorders (FASD) refers to a group of conditions which affects two to five percent of children in the US annually,” said Baker. “These effects can include cognitive deficits such as learning disabilities, hyperactivity, and poor memory. My work aims to investigate the intersection of genetics and alcohol-induced neuroinflammation in the hopes it will lead to a better understanding and treatment options.”

Baker’s F31 award stems from the research she does under the direction of Kristin Hamre, PhD, associate professor in the department of Anatomy and Neurobiology at UTHSC. Specifically, in September 2016, Dr. Hamre and Cynthia Kane, PhD, professor at the University of Arkansas for Medical Sciences (UAMS) were selected as the recipients of the first UTHSC/UAMS USA Collaborative Research Network (CORNET) Award in Substance Abuse. The CORNET award was used to fund their study titled, “The Role of Genetics in the Neuroimmune Response to Developmental Alcohol Exposure in the Hippocampus.”

“The immune system has a big impact on brain development,” said Dr. Hamre. “We are looking at the roles that genetics play, as well as inflammation in the developing fetal brain. The CORNET Award allowed us to show that we had an active collaboration and strong institutional support for this collaboration, both of which were essential in helping us get Jessica’s fellowship.”

Drs. Kane and Hamre have known each other for a number of years and saw the CORNET Award as their opportunity to finally collaborate. Since receiving their CORNET Award, Dr. Hamre’s team has traveled to UAMS to do training with Dr. Kane’s lab. The pair plan to use the data collected with the help of their CORNET Award to submit an application for federal funding in the future.

For Jessica, receiving an F31 Award will help her complete her thesis work being done in Dr. Hamre’s lab. She will receive funding over the next three-year period.
Researchers at UTHSC and the Memphis Veterans Affairs Medical Center played a significant role in collecting data that resulted in the new guidelines announced in late October for the prevention, detection, evaluation, and management of high blood pressure.

The first comprehensive new high blood pressure guidelines were published by the American College of Cardiology and the American Heart Association at the association’s 2017 Scientific Sessions Conference in California. They set the definition of hypertension at 130/80 mm Hg, rather than 140/90 as it has been for over a decade. The significant reduction is based on results from the SPRINT (Systolic Blood Pressure Intervention Trial) study, which took place at 102 study sites across the country, including sites at UTHSC and the Memphis VA.

The study “changed the way we define high blood pressure,” said Karen C. Johnson, MD, MPH, College of Medicine Endowed Professor in Women’s Health (pictured left). Dr. Johnson was the national vice chair of the SPRINT Steering Committee and the PI for the UTHSC site.

“I think that it will result in a huge reduction in cardiovascular disease and death, when people start using these new levels in practice,” she said.

The SPRINT study began in 2009 as a randomized clinical trial. It included more than 9,300 participants, age 50 and older, recruited from more than 100 medical centers and clinical practices throughout the United States and Puerto Rico. It was the largest study of its kind to date to examine how maintaining systolic blood pressure at a lower than the then-recommended level would impact cardiovascular and kidney diseases. The UTHSC site recruited and followed 176 subjects, and the Memphis VA site recruited and followed 80 participants.

In 2015, the National Heart, Lung, and Blood Institute, SPRINT’s sponsor, stopped the study about a year earlier than planned in order to disseminate the significant preliminary results.

SPRINT found that more intensive management of high blood pressure, below the commonly recommended blood pressure target, significantly reduced rates of cardiovascular disease and lowered risk of death in adults 50 years and older with high blood pressure. The intervention adjusted the amount or type of blood pressure medication to achieve a target systolic pressure below 120 mm Hg. This reduced rates of cardiovascular events, such as heart attack and heart failure, as well as stroke, by a quarter, and the risk of death by more than a quarter, as compared to the target systolic pressure of 140 mm Hg.

Dr. Johnson explained the new guidelines set normal blood pressure as less than 120 over 80. Elevated blood pressure is now considered to be in the 120-129 range (systolic). Stage 1 hypertension is at 130-139. “That’s a big change, because it used to be 150 (systolic),” she said.

“You need to get your blood pressure rechecked, because you want to make sure that if you have high blood pressure, you have it treated to less than 130, and I personally, think you should have it less than 120, based on the SPRINT study,” she said.

“The SPRINT clinical trial was an amazing project,” said Catherine Womack, MD, co-division chief of General Internal Medicine, interim chair of Preventive Medicine, and coinvestigator for the study at UTHSC (pictured center). “Basically, we were able to prove that lower blood pressure prevents heart attack and all-cause mortality in older patients with hypertension. Based on our investigative findings, the national blood pressure guidelines lowered the blood pressure levels needed to diagnose hypertension. It is not often that an investigator can say they changed the way doctors practice medicine. I am very proud to have worked with Dr. Johnson and all the other investigators on this important clinical trial.”

“The new guidelines not only base blood pressure treatment goals on SPRINT, but also stress the importance of measuring blood pressure correctly, as was done in SPRINT,” said William C. Cushman, MD, chief of Preventive Medicine at the Memphis VA, and professor of Preventive Medicine, Medicine, and Physiology at UTHSC (pictured right). Dr. Cushman was the PI for the VA Network of 25 VA sites, which recruited 1,660 participants for the trial.

Linda Nichols, PhD, professor, and Jennifer Martin-dale-Adams, EdD, associate professor, in the Department of Preventive Medicine at UTHSC, are coinvestigators for the VA Network on another portion of the study, SPRINT MIND, which is looking at whether lower blood pressure decreases risk of cognitive impairment. That portion of the study is ongoing.

Dr. Johnson said SPRINT has had a worldwide impact on how people define hypertension. “That’s huge,” she said. “And now we just need to get clinicians to follow the guidelines.”
Purple Rain & Leadership: A Message from the Vice Chancellor for Research

We have several leadership positions open at UTHSC with search committees assigned. It seems like an opportune time to think about the qualities that we are looking for in our current and future UTHSC leaders.

With the passing of Prince Rogers Nelson in April 2016, the world lost a musical genius and innovator. One of his best-known works was *Purple Rain* from the movie of the same name. Did you know that the song contained his thoughts on leadership? Well, it did. Here are some of the lyrics:

“I know times are changing
It’s time we all reach out
For something new, that means you too
You say you want a leader
But you can’t seem to make up your mind
I think you better close it
And let me guide you to the purple rain”.

Change can be scary but is necessary for growth. A leader must be a change navigator. While many leaders understand what needs to be accomplished during change management, few understand the people side of change. Why would you allow a leader to “guide you to the purple rain?” The leader must have the ability to build trust. For a new leader, this takes time. Perhaps the most important attribute of great Leaders is their honesty and transparency. “No legacy is so rich as honesty”- William Shakespeare.

The leader must be able to articulate a clear and sensible vision and chart a path towards shared goals. We have a shared vision for UTHSC Research stated in the Operational Strategic Plan for Research that is being implemented successfully with the help of faculty-driven Implementation Teams, led by the VCR’s Research Cabinet. I look forward to the help of our new UTHSC leaders in creating a network of effective change agents.

What are other core values of true leaders? Outstanding leaders do the right thing even when it is not popular at that moment. John Izzo, author of *Stepping Up*, said “Often as leaders...we must make the choice to risk popularity or take on strong interests because we feel it is the right thing to do.”

As the leader takes on strong interests, they will encounter those who are used to getting their way by being combative and confrontational. Which leads us to the next core value of leadership, which is that one must be willing to confront bullies effectively but selectively. As Winston Churchill said: “You have enemies? Good. That means you’ve stood up for something in your life.” However, as Winston Churchill also explained you cannot allow these confrontations to become consuming and delay you from reaching the desired destination.

Amazingly, I have gone from Prince to Winston Churchill, on this one page describing leadership. I think by now you get my gist. We are in the midst of hiring new leadership at UTHSC (Deans, Associate Vice Chancellors, and Chairs) that will influence the future of UTHSC including its research programs. Let us look for the qualities listed above in these future leaders. When we find them, let us give them the time to exemplify these qualities, and our complete support as they enter the UTHSC environment and culture, which they must learn to navigate. As VCR, I look forward to their new ideas, vision, and help in strengthening and growing UTHSC Research.

- Steven R. Goodman, PhD
Vice Chancellor for Research