Upcoming/ongoing events:

- A $4.8M package for American Baptist College, Meharry Medical School, and Jefferson Street Interstate Cap secured by Rep. Jim Cooper (TN-05). This spending package includes $1M for purchasing a supercomputer cluster at Meharry’s School of Applied Computational Sciences. Click here to read more.

- The Faculty Research and Education Development (FRED) mentoring program by the American Society of Cell Biology offers grant writing mentoring to junior faculty and senior postdocs from underrepresented backgrounds in STEM. Those at minority-serving institutions and institutions committed to recruiting students from underrepresented in STEM are also eligible. Click here to learn more.

Reminder: Meharry’s COVID-19 vaccine mandate goes into effect on Oct 1. Click here for President Hildreth’s video message.

Sickle Cell Awareness Month. The Meharry Sickle Cell Center is conducting free screenings in September. Call 615-327-6763 to make an appointment.

New funding opportunities from the NIH/NHGRI. Current due date is Feb 22, 2022. Click here for details and pay attention to the announcement email.

Dear Meharrians:

As I have emphasized frequently, Meharry’s greatest strength is its people. Our students, faculty, and staff are innovative and entrepreneurial. Despite the threat we face from the ongoing COVID-19 pandemic, Meharry has maintained their rigor and productivity. Unrelenting teamwork from our talented and motivated group of high achievers continue to bring accolades to Meharry. It is my goal to support the exceptional scholarship, education, and transdisciplinary team spirit that will transform Meharry into one of the best academic health science institutions.

Focusing on the intellectual transformation and performance culture as one of our key strategic goals, we will implement growth and excellence plans for our students, postdoctoral associates, and junior faculty, whose talents we will nurture so that they can become next-generation leaders. To do this, we need to evolve Meharry’s culture to one that empowers Meharrians to shine and exceed their own limits. We must embrace a culture that is not intimidated by change, one in which silos are minimized and inefficiencies are neutralized, one in which the best ideas are valued no matter who espouses them, and one where everyone on the campus is appreciated for their role in the enterprise.

Together, we will continue to build on our successes and shape Meharry to address local, national, and global challenges. We aim to deliver cutting-edge opportunities for the underserved minorities and communities worldwide.

Thank you for all that you do for Meharry.

With kind regards,

Anil Shanker, M.S., Ph.D.
Senior Vice President for Research and Innovation
Professor of Biochemistry, Cancer Biology, Neuroscience and Pharmacology

Congratulations to all Meharry investigators who have received extramural funding!

Biochemistry, Cancer Biology, Neuroscience and Pharmacology
Shanker, Anil
Sapp, Nicklas
Son, Daok-Soo
Stewart, LaMonica V.
Balaikumar, Muthukumar

Center for AIDS Health Disparities
Dash, Chandranunu
Dong, Xinhong
Liu, Bingdong
Peip, Waldmar
Pandhare, Jui

Center for Molecular & Behavioral Neuroscience
Charlton, Clivel G.

Central Administration
Samuels, Adrian D.

Dental Dean’s Office
Farmer-Dixon, Cherise

Family & Community Medicine
Collins, Millard
Cooper, Robert L.
Juarez, Paul D.
Matthews-Juarez, Patricia
Morelli, Vincent
Sanderson, Maureen

Graduate Dean’s Office
McEly, Eugangeline D.
Woods, Letha

Graduate Studies
Actkins, Ky’Era
Pratap, Siddharto
Sakwe, Ames M.

Internal Medicine
Ahanotu, Chinomuosa
Berthaud, Vladimir
Enes, Jennifer C.
Fremont, Richard
Singh, Rahul
Smoot, Duane

Medical Dean’s Office
Forbes, Digna S.

Microbiology, Immunology, and Physiology
Borza, Dorin Bogdan
Chaudhuri, Minu
Liu, Bingdong
Nde, Pius N.
Villalta, Fernando

From the Meharry Medical College Office for Research and Innovation

ANNUCLEMENTS

THE VP’S COLUMN

FUNDED INVESTIGATORS

SPOTLIGHT

Meharry graduate student gains acceptance into the Neuroscience Scholars Program by the Society of Neuroscience

Third-year neuroscience graduate student Tonie Farris (pictured) recently gained acceptance into the Neuroscience Scholars Program (NSP) by the Society of Neuroscience. This two-year online training program, which began in August 2021, aims to equip its participants with knowledge on the research process and career advancement as well as provide them with cutting-edge scientific content.

Immunotherapy, and Dr. Akiko Shimamoto of the neuroscience program serve as her mentors.

Farris’s research centers around the crosstalk between neurological and immunological functions. She aims to discover new neuro-immunological paradigms for memory and cognition in Alzheimer’s disease. Currently, she studies the tumor suppressor and mitochondrial calcium-handling protein Fus1 in T cells and neurons in the central nervous system. Ultimately, she hopes to uncover the underlying mechanisms associated with neurodegenerative diseases. Farris’s project has been selected for poster presentation at the Society of Neuroscience annual meeting in November 2021.

Farris decided to apply to NSP because it offers networking and mentorship opportunities to budding neuroscientists. Importantly, the program also promotes diversity in the field of neuroscience. As a Black woman, Farris faces tremendous challenge in a field that severely lacks female and minority representation. As a graduate student at a historically black medical college and an alum of an HBCU, she longs for an outlet to express herself and to thrive in an extremely competitive field. “I believe that NSP will bridge the gap between exposure and opportunity for underrepresented individuals in neuroscience,” she said.

Farris described her application experience as tedious but otherwise straightforward. To those interested in applying to NSP, her advice is to start their applications early. Particularly, she emphasizes the importance of a well-written CV as well as a diverse portfolio, be it publications or conference presentations. Starting her application early allowed her to seek comments from her mentors and members of the Meharry graduate school on how to improve her application.

Through her participation in NSP, Farris seeks to expand her knowledge and network in order to advance her career. Specifically, she wants to improve her skills in leadership, research collaboration, grant writing, and public speaking. One of her goals as a graduate student in neuroscience is to meet and connect with her colleagues in the field. “Building professional relationships with other researchers is crucial for my continued growth as a researcher,” she explained. Therefore, she looks forward to the new connections she will make with her peers and mentors in NSP.

Thus far, Farris has attended a two-day virtual conference aimed at preparing the next generation of neuroscience leaders. At this conference, she met with representatives from the NIH, participated in networking sessions, and gained insights into how to become a leader regardless of her career stage. Moving forward, she looks forward to connecting with NSP-affiliated principal investigators and her fellow participants to discuss all issues related to NSP and neuroscience in general.

WHERE ARE THEY NOW?

MEHARRY ALUMNI SERIES

Dr. Glenn E. Simmons Jr. (pictured) chose to attend graduate school at Meharry Medical College because he wanted a change in learning environment. Upon graduating from the University of South Florida with a BS in Biomedical Science, he next wanted to learn from African American scientists at an institution smaller than his alma mater. Meharry fit the bill.

Now an Assistant Professor of Immunology and Cancer Biology at the University of Minnesota School of Medicine, Dr. Simmons remembers Meharry fondly. At Meharry, he felt welcomed. It felt like home where people cared about him as a person, rather than simply a student that made up the number. “My success and failures were embraced, and I was raised in that family-like atmosphere,” he said. “Meharry showed me that black scientists can train the next generation of black scientists in a manner that cannot be done outside an HBCU campus.”

(...continued)
Dr. Simmons credits his professional achievements to the nurturing and inclusive environment that he experienced at Meharry. "Thanks to Meharry, I was prepared to run the marathon towards my goals in academic science," he explained. He is particularly grateful for opportunities to lead projects as a student and find ways to integrate the community into his research. He believes that these experiences play a big part in his success in obtaining federal funding and his career progress. Today, he continues to conduct a mix of basic and translational research involving the African Heritage community in order to improve their health outcomes and research participation. He plans to one day return to an HBCU as an established investigator to train students who are, like he once was, seeking a welcoming environment in which they can learn and thrive.

Dr. Simmons has high hopes for Meharry's future. "I see Meharry embracing the digital trends of science and designing more pathways to advanced degrees for talented students of color," he said. He hopes that Meharry will continue to emphasize training African Heritage students as well as find ways to encourage them to stay in and serve communities of color.

As for current Meharry students, Dr. Simmons wants them to know that there is no time to waste. "Do not let the title of a student lull you into a false sense of complacency," he said. "The time to prepare for your next step is today," he added. And a good place to start is to network early and often, both inside and outside the classroom as well as in Nashville and beyond.

WELCOME TO MEHARRY!
INTRODUCTION OF NEW HIRES

School of Applied Computational Sciences (SACS)

Dr. Qingguo Wang joined Meharry’s SACS in January 2021 as a Professor of Computer Science and Data Science. His research interests include cancer genomics, next-generation sequencing, machine learning, and algorithm. In addition to teaching data science courses at Meharry, he plans to apply his expertise to various aspects of health disparity research. He previously invented VirusFinder, an open-source, automated software that uses sequencing data to characterize integration sites of previously unidentified viruses.

Dr. Wang also serves as the Department Chair and the Chair of the Graduate Admission Committee for the School. In this capacity, he assists with student enrollment as well as the review and hiring of the faculty and staff.

Dr. Wang has a Ph.D. in Computer Science. Prior to joining Meharry, he was an Associate Professor of Data Science at Lipscomb University from 2016 to 2020. Before moving to Tennessee, he worked as a bioinformatics engineer at the Marie-Josée and Henry R. Kravis Center for Molecular Oncology at Memorial Sloan Kettering Center in New York, NY, from 2014 to 2016.

Dr. Aize Cao joined Meharry’s SACS in January 2021 as an Associate Professor of Biomedical Data Science. She is a biomedical informatician and data scientist with expertise in large-scale healthcare data analysis.

Dr. Cao heads the Population Health Informatics and Disparities Research Lab (PHIDRL) at Meharry. Here, her focus is to study patient health outcome and health disparities by leveraging healthcare informatics, predictive analysis, and machine learning techniques on electronic health records (EHR). She is currently developing phenotype risk adjustment models for COVID-19 to look at health disparities, and studying how the pandemic impacts patients with substance use disorders. She plans to seek NIH funding to better understand the impact of COVID-19 on patients with chronic conditions as well as its long-term effects associated with health disparities and inequities.

Dr. Cao developed her data science research portfolio at Vanderbilt University, where she worked as a research associate, neuro-imaging analyst, computer analyst, and research assistant professor over a 15-year period. There, she participated in various projects concerning a wide range of medical and clinical applications. Additionally, she taught data science courses as an adjunct professor at Lipscomb University from 2019 to 2020. She aims to continue her efforts in training and mentoring students in data science at Meharry.

In her free time, Dr. Cao likes to spend time with her family, go running with her dog, and cheer at her daughter Daphne’s soccer games.

Dr. Vibhuti Gupta joined Meharry’s SACS in January 2021 as an Assistant Professor of Computer Science and Data Science. His research focuses on developing techniques and methods for harvesting and analyzing data from various data sources. At Meharry, Dr. Gupta heads the Mobile Health (mHealth) Wearable Sensors Lab. Here, he creates and develops systems for collecting and analyzing data from digital health devices and mHealth platforms. His goal is to leverage these data to improve disease diagnosis, detection, and prevention as well as to facilitate personalized patient care.

Dr. Gupta has a Ph.D. in Computer Science from Texas Tech University. Prior to joining Meharry, he was a postdoctoral fellow at the University of Michigan Medical School, where he worked on nheath applications to support the well-being of patients undergoing hematopoietic cell transplantation and their caregivers. As a graduate student at Texas Tech University, he developed and taught a course in programming and data analysis in MATLAB/R. At Meharry, he will continue to teach, mentor, and train students in data science.

In his free time, Dr. Gupta enjoys spending time with his family and visiting new places.

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Dr. Abdul Sawas started his position as the Human Protections Administrator and Ethics Officer in June 2021. He is responsible for ensuring that all clinical trials at Meharry comply fully with FDA requirements. Some of his tasks include developing new and revising existing policies and procedures to support the Institutional Review Board (IRB) at Meharry, maintaining proper records and filing of all IRB activities, and reviewing submitted protocols to make sure they comply with federal regulations. He will assist in the design and development of IRB protocols for Meharry investigators. He will also develop training materials for human subjects protection and ethics. In short, he is the go-to person for all matters related to studies involving human subjects.

Dr. Sawas is no stranger to research regulations. Prior to joining Meharry, he was a clinical trial monitor and Harmonization/Good Clinical Practice consultant at Clinical Trial Consulting Solutions in North Carolina from 2018 to 2021. Before relocating to the US, he was an IRB officer and a research scientist at King Abdul Aziz Medical City in Saudi Arabia from 2012 to 2017.

Dr. Sawas received his Ph.D. in Biochemical Pharmacology from Heriot-Watt University in the UK and his associate degree in Environmental Health from Cook College at Rutgers University in New Jersey. Throughout his career, he has contributed to multiple scientific and clinical publications as well as the teaching and mentoring of students. In his free time, he enjoys taking long walks and socializing with family and friends.

Lisa M. Jones started her position as the Regulatory Review Administrator in September 2021. She is responsible for organizing and managing support for the federally mandated Institutional Animal Care and Use Committee (IACUC) and Institutional Biosafety Committee (IBC). IACUC reviews and approves all research involving animals, while IBC reviews and approves all research involving biological agents.

Jones has a Master of Science in Biology from Tennessee State University. She began her career at Meharry as the lab manager for the late Professor Amementus James Townsel. In the early 2000s, she transitioned to the role of Senior Program Officer at the Grants Management Office and was later promoted to the position of Senior IACUC Administrator/Program Officer at the Research and Compliance Office. In 2011, she moved to the Office of Animal Welfare Assurance at Vanderbilt University Medical Center to assume the role of a Policy Analyst. In 2014, she became a Regulatory Coordinator at the Sarah Cannon Cancer Center, which is affiliated with HCA Healthcare. Her wealth of experience in regulatory compliance, leadership, and customer service renders her an asset to Regulatory Affairs at Meharry.

In her free time, Jones enjoys visiting historical landmarks associated with her family history.

### PUBLICATION HIGHLIGHTS

Want your publications featured in the Publication Highlights? Please complete this REDCap survey to share the information with us!

From the groups of Drs. Chandravanu Dash and Jui Pandhare:

**Activation of proline metabolism maintains ATP levels during cocaine-induced polyADP-ribosylation.**


Cocaine exposure inflicts cellular and molecular changes in the brain reward regions, primarily through chromatin remodeling to alter gene expression. Here, the authors examined how cocaine exposure affects the expression and function of poly(ADP-ribose) polymerase-1 (PARP-1). PARP-1 is an enzyme that adds ADP-ribose polymers to proteins in a process called PARylation. Using a human neuroblastoma cell line, the authors showed that cocaine exposure increased PARP-1 expression. This increase in PARP-1 levels led to an increase in the PARylation of tumor suppressor p53, followed by its accumulation in the nucleus. Interestingly, rather than causing the cells to die, the nuclear accumulation of PARylated p53 induced the expression of proline oxidase (POX) (pictured). POX is a metabolic enzyme that can lead to either reactive oxygen...

(...continued)
Mitochondrial membrane protein translocases play an important role in protein transport across the outer and inner membranes of mitochondria. This is because while the mitochondria rely on hundreds of proteins to perform their functions, the mitochondrial genome only encodes a handful of these proteins. Therefore, most mitochondrial proteins travel from the cytosol to the mitochondria through protein translocases on the mitochondrial outer and inner membranes known as TOMs and TIMs (pictured on left). This review features Tim50, one of several components of TIM23. TIM23 exists in multiple species, including yeast, plants, and parasitic protozoan Trypanosoma brucei. Research in the Chaudhuri group focuses on Tim50 in T. brucei known as TbTim50. In this review, the authors detailed the structure and functions of TbTim50 as well as compared it to Tim50 in other species. Of interest is the role of human Tim50 in hormone production, cardiac function, and the initiation and progression of various human diseases and cancers.

From the group of Dr. Minu Chaudhuri:

The background for this research lies in the stark statistical differences between Black and non-Hispanic White populations in rates of homicide and exposure to non-homicidal violence. All these numbers point to far greater exposure to violence in predominantly Black communities.

Corbin’s team asked whether traumatic exposure was associated with psycho- somatic conditions. The authors surveyed 88 survivors of violent assault (gunshot, stabbing, or other assault) who had presented to emergency rooms within the previous month. They administered clinical scales for PTSD (PCL-5), depression (PHQ-8), and sleep (PROMIS®) to evaluate the mental health sequelae of violent assault. The results were decisive, showing greatly elevated rates of psycho- somatic conditions among people exposed to violence. Specifically, they reported that “high proportions of participants met criteria for prospective PTSD (59.1%), major depression (44.3%) or disordered sleep (34.1%), with 27.3% meeting criteria for all three conditions.”

The authors concluded that survivors of violence should routinely be assessed for these conditions and referred for treatment as needed. This work serves as a powerful reminder of the seen and unseen damage inflicted by violence. It will be of use for clinicians, both in the emergency room and in primary care settings.

Contributed by Dr. Virginia Brennan

Figure obtained from Chaudhuri et al., Int. J. Mol. Sci. 2021, 22(15), 7779. Reproduced under the Creative Commons Attribution License.

Meharry was selected to receive a $5 million grant guarantee and EON Reality co-investment to establish an EON-XR center for 1500 students. EON-XR is a virtual and augmented reality platform that facilitates teaching, training, and learning for users worldwide.

Dr. Regina Offodile spearheaded the submission of this application to the Grant Guarantee Program for Post-Pandemic Recovery Assistance.

Congratulations!

Meharry received a five-year R25 grant from NIH/NIAID for the “Enhancing Virology Training” (ENVIT) project. Dr. Chandravanu “CV” Dash serves as the principal investigator and program director. His co-investigators are Dr. LaMonica Stewart who also serves as co-director, Dr. Jui Pandhare, Dr. Evangeline Motley-Johnson, and Dr. Muthukumar Balasubramanian. The program aims to prepare and increase the number of African-American and other underrepresented minority students heading towards virology-focused careers.

Congratulations!

Want to share your research news, highlights, and announcements with us? Want your stories featured in The Research Digest? Please submit this REDCap survey to share your updates with us. We look forward to celebrating your achievements!

Erratum: The previous September 2021 issue displayed the wrong information for the journal article in the JHCPU Editor’s Pick section. This new PDF contains the correct information.