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Dean's Research Newsletter, February 2021

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New York Medical College

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I am pleased to share with you the latest edition of the research newsletter that spotlights exciting research news from across New York Medical College (NYMC) School of Medicine (SOM) clinical and basic science areas, including important research on schizophrenia and several student research projects focused on brain cancer, deep vein thrombosis and psychiatric emergencies during the COVID-19 pandemic. We also enjoyed seeing the outstanding research showcased during the Medical Student Research Forum, which you can read more about in this newsletter.

I continue to be impressed by the commitment to research by our faculty and students to advance us scientifically. It’s very encouraging to see increasing research collaborations with our wide network of clinical affiliates.

As dean, I am committed to supporting these research endeavors, so I was pleased to introduce a new research incentive plan to reward exceptional performance by our full-time faculty, which we announced in the last newsletter. We also now have in place the new Zeiss LSM 980 plus Airyscan 2 confocal system that has been incorporated into the NYMC Histopathology and Imaging Core, which was obtained using funds from a shared instrumentation grant from the National Institutes of Health (NIH).

Congratulations to everyone as you continue your research, collaboration and success in securing grants. I look forward to sharing more news in future newsletters, including news about enhancing collaborative clinical research. Be safe and well.

Jerry L. Nadler, M.D., MACP, FAHA, FACE
Dean of the School of Medicine
Professor of Medicine and Pharmacology
25th Annual Medical Student Research Forum Showcases Research on Wide Range of Topics

More than 70 SOM students had the opportunity to present their research to the NYMC community during the 25th Annual Medical Student Research Forum (MSRF) on February 4. Topics presented during the virtual forum, which is planned entirely by students on the Medical Student Research Committee, ranged from heart disease treatment, barriers to breast cancer screening and poor sleep health during COVID-19 lockdowns to gender differences in the writing of recommendation letters for residency applicants.

“The MSRF is an event the entire NYMC community looks forward to each year,” says Sacha Roberts, SOM Class of 2023 and a member of the Medical Student Research Committee. “The MSRF provides medical students with the opportunity to showcase their research and form invaluable connections with faculty and deans. It is always exciting to see so many projects come together each year and I am continuously impressed by my fellow students’ dedication to research.”

This year’s keynote speaker was Phillip C. Song, M.D., director of the Division of Laryngology at Massachusetts Eye and Ear, and assistant professor of otolaryngology, head and neck surgery, at Harvard Medical School. During his hour-long presentation, Dr. Song, who specializes in laryngology, voice and swallowing disorders and neurolaryngology, spoke of surgical advances in his field and how to use technology to become a better physician, while encouraging students to keep challenging themselves with goals to strive for in their medical education and throughout their careers. “Residency is too short. Medical school is too short. You cannot come out of those programs with the full knowledge you will need,” he said. Read full story on Medical Student Research Forum.

25th Annual Medical Student Research Forum Award Winners

Arthur Karmen, M.D. Awards
Omar Tarawneh, SOM Class of 2024
“Impact of Vitamin D Status on the Development of Arthrofibrosis following Total Hip or Knee Arthroplasty: A Systematic Review”

Alexa Rendon, member of the Accelerated Master’s Program, GSBMS Class of 2021
“Modulating Early Life Microbiome through Dietary Intervention in Crohn’s Disease”

Joel Novograd, Yaakov Itzkowitz and Ariel Sher, SOM Class of 2023
“The Pivotal Role of Adipocyte-Na K peptide in Reversing Systemic Inflammation in Obesity and COVID-19 in the Development of Heart Failure”

Dean’s Awards
Sara Heide, Katie Roster and Jasmine Garg, SOM Class of 2023
“Federal and Local Recommendations for Healthcare Worker Safety during The COVID-19 Pandemic”

Oral Presentations
First Place
Alis Dicpinigaitis, SOM Class of 2023

Second Place
Mayur Urva, SOM Class of 2021
“Delays in Debridement of Open Long-Bone Fractures Increase Risk of Infection in Low-and Middle-Income Countries”

Poster Presentations
First Place (tie)
Ilan Fleisher, SOM Class of 2024
“Development and Validation of Crosswalks between the WOMAC and KOOS, JR”

JennaLynn Philipp, SOM Class of 2023
“Remote Early Intervention Therapy Experience from the Perspective of both the Child/Family Dyad and the Provider during the COVID-19 Pandemic”

Second Place (tie)
Jacob Greisman, SOM Class of 2023
“Pipeline Flow Division for Anterior Communicating Artery Aneurysms”

Maziyah Ogarro, SOM Class of 2024
“Visualization of Eukaryotic Translation by Structural Analysis”

Third Place
Erick Martinez, SOM Class of 2023
“Anti-Platelet Factor 4 Test and Serotonin Release Assay: The Gold Standard for Diagnosing Heparin Induced Thrombocytopenia Type II in Aneurysmal Subarachnoid Hemorrhage Patients”
Dr. Heather Brumberg Named First Woman President of Eastern Society of Pediatric Research

Heather L. Brumberg, M.D., M.P.H., FAAP, professor of pediatrics and professor of clinical public health, has assumed the role of president of the Eastern Society of Pediatric Research (ESPR)—the first woman to do so. ESPR is the largest of four regional societies for pediatric research with approximately 400 members from academic pediatric centers throughout the northeast and middle Atlantic regions of the United States as well as eastern portions of Canada.

“Our goal, which has been updated as part of our initiative to focus on diversity, equity and inclusion, is to provide investigators of all races, ethnicities, religions, sexual orientations, gender identities and those with disabilities, especially trainees and junior faculty members, an opportunity to meet and present their recent research data for critical review,” says Dr. Brumberg, who also serves as the director of Neonatal Public Health Programs, associate director of the Regional Perinatal Center, and medical director of the Lower Hudson Valley Perinatal Network at Maria Fareri Children’s Hospital, a member of the Westchester Medical Center Health Network (WMCHealth).

“I am excited that since I was named president [of the ESPR], we have updated our goals and created a new Diversity, Equity and Inclusion Committee. This committee has already sponsored a workshop on unconscious bias and how it affects medical research for ESPR leadership. Our upcoming annual conference in March, as always, will showcase the best scientific research from our young investigators and we will be paying special attention to highlighting diversity in the research workforce.”

Dr. Brumberg’s own research interests include electronic cigarette use in pregnancy, pre-conception health, health policy and perinatal regionalization. She is the recipient of the National Perinatal Association Research Award and has served as an invited lecturer at many academic conferences and children’s hospitals across the country. Read the full story on Dr. Brumberg.

Virology Expert Christopher Whitehurst, Ph.D., Joins NYMC

Further building on its strength in virology research, NYMC has recruited Christopher Whitehurst, Ph.D., who specializes in the study of the Epstein-Barr virus, to join the SOM and Graduate School of Basic Medical Sciences (GSBMS) as assistant professor of pathology, microbiology and immunology and of biochemistry and molecular biology.

“New York Medical College has a long history of being at the forefront of virology research through its involvement in the development of the influenza vaccine,” says Jerry L. Nadler, M.D., SOM dean and professor of medicine and pharmacology. “The addition of Dr. Whitehurst to our faculty will further solidify our strong reputation in this area and serve as an excellent mentor and role model for our students.”

“Nothing like a viral pandemic that crystalizes, more than ever, the importance of virology research to society,” says Marina Holz, Ph.D., GSBMS dean and professor of cell biology and anatomy. “We are delighted that Dr. Whitehurst will expand our research portfolio in this area and welcome him to NYMC.”

Dr. Whitehurst joins NYMC from the University of North Carolina at Chapel Hill (UNC), where he was since 2006, first as a post-doctoral fellow and most recently as research assistant professor. He completed his bachelor's degree in biochemistry at Clemson University, followed by a master's in chemistry at the University of Wisconsin–Milwaukee where he studied the vaccinia virus that was used in the smallpox vaccination. He earned his Ph.D. in biochemistry at North Carolina State University for studies of the sindbis virus, which causes sindbis fever in humans.

His work now focuses on the Epstein-Barr virus, which is the causative agent of infectious mononucleosis and is associated with multiple forms of cancer, including Hodgkin’s lymphoma, Burkitt’s lymphoma and nasopharyngeal carcinoma.
SOM Student Eric Feldstein Continues Research into New Treatments for Deadly Form of Brain Cancer

High-grade gliomas, historically called glioblastoma multiforme or GBMs, are the most common and deadly of the primary brain cancers, with an average survival rate of 12 to 18 months and just a five percent, five-year survival rate even with current aggressive therapy. Throughout his years at NYMC, Eric Feldstein, SOM Class of 2021, has continued his involvement in research he began before medical school to discover a new standard of care for this deadly illness, in conjunction with his mentor, Adam Sonabend, M.D., assistant professor of neurological surgery at the Robert Lurie Comprehensive Cancer Center at Northwestern University.

“A diagnosis of GBM is devastating,” says Mr. Feldstein. “This is a disease that strikes generally unexpectedly. A person who has had no family history and is otherwise healthy starts getting worsening headaches over the course of some weeks and may develop seizures or focal neurologic deficits. After imaging and then a biopsy, what was once thought to be just a headache has been revealed as their future cause of death.”

Historically, brain cancer was diagnosed, identified and set up for treatment through histology. However, in 2016, the World Health Organization came out with a classification of gliomas based on genotyping, a harbinger of the trajectory for glioma research. “Genotyping has shown that the title high-grade glioma masks the fact that the disease is heterogeneous,” says Mr. Feldstein. “One person’s cancer is not like another, and treatment potentially beneficial for one may not be beneficial for someone else. Instead of finding the right cure for gliomas, the name of the game could be finding the right glioma for the cure.”

Read the full story on research into treatment for GBMs.

Fourth-year Medical Student Scarlett Tohme Designs Study to Examine Risk Factors for Deep Vein Thrombosis at Richmond University Medical Center

With plans to pursue a career in surgery, Scarlett Tohme, SOM Class of 2021, made a point to seek out opportunities to conduct research with the trauma surgery department after completing her recent obstetrics and gynecology rotation at Richmond University Medical Center (RUMC), which ultimately resulted in her designing and leading a research project into the risks factors for deep vein thrombosis. The research study, conducted at RUMC during the spring and summer of 2020, has now been submitted for publication to the Journal of Vascular Surgery: Venous and Lymphatic Disorders.

“I believe that in order to be a successful physician, it is important to not only gain knowledge and skills but also share what I learn with others through research and mentorship,” says Ms. Tohme, who reached out to Nisha Lakhi, M.D., associate professor of obstetrics and gynecology and the assistant clerkship director at RUMC, about how she could participate in research. “Dr. Lakhi’s dedication to medical education is undeniable and her commitment to supporting medical students in any and every aspect of their medical education is incredible. As part of her research role at RUMC, she also works with the trauma surgery department on research projects to help maintain RUMC’s Level I Trauma Center status.”

For her research, Ms. Tohme chose to examine the risk factors that lead patients to develop deep vein thromboses in their upper extremities. “The medical community is aware of the dangers of blood clots in the legs, and how they can cause significant heart and lung issues and may even lead to fatal outcomes if not caught early and treated appropriately,” she says. “Yet while there is a vast amount of information on what risk factors lead to blood clots in the deep veins of the legs, how to treat them and adequately prevent them, what is not as well-known is the particular risk factors that may affect how blood clots can develop in the deep veins of the arms in patients.”

Read the full story on a research study on deep vein thrombosis.
Study Published in Nature Neuroscience Suggests Prenatal Exposure Could Increase Children’s Risk for Schizophrenia

Epidemiological studies have frequently associated increased immune responses in pregnant women brought on by such factors as maternal infection, autoimmune disorders and asthma, with later development of neuropsychiatric disorders, including schizophrenia and autism spectrum disorders, in their children.

A team of researchers at NYMC, led by Sangmi Chung, Ph.D., associate professor of cell biology and anatomy, neurology and of psychiatry and behavioral sciences, recently conducted a study investigating the impact that the activation of microglia (a type of neuronal support cell that functions primarily as an immune cell) can have on an embryo’s development of cortical interneurons—a specific class of neurons that regulates information processing. Their findings, published in Nature Neuroscience, suggest that activated microglia can cause metabolic disruptions that adversely impact the prenatal development of cortical interneurons and increases an individual’s risk for developing schizophrenia later in life.

Co-authors on the study include Weihua Huang, Ph.D., associate professor of pathology; Hae-Young Kim, M.S., Dr.P.H., associate professor of public health, School of Health Sciences and Practice (SHSP); Cameron Beaudreault, M.S. ’20, SOM Class of 2024; Youxin Guan, SOM Class of 2021; as well as M.S. students in the GSBMS Chiderah Abani, Sasha Gonzalez and Derek Le. Read the full story on research into schizophrenia.

Grants Corner

Mitchell S. Cairo, M.D., professor of pediatrics, medicine, pathology, microbiology and immunology and of cell biology and anatomy, received a $105,476 grant from Merck for “Cytomegalovirus (CMV) Viremia and Disease Occurrence in Pediatric Allogeneic Stem Cell Transplantation Recipients Following Ganciclovir Prophylaxis until Day +100.”

Mitchell Fraiman, M.D., clinical assistant professor of urology, received a $3,900 grant from Francis Medical, Inc. for “Multicenter Pilot Study of the Poseidon System for the Ablation of Prostate Tissue in Patients with Intermediate Risk Localized Prostate Cancer.”

Sei Iwai, M.D., professor of medicine, received a $240,195 grant from Biotronik for “BIO-LIBRA Clinical Study.”

Rifat Latifi, M.D., chair and professor of surgery, received a $172,691 grant from KCI America for “A Prospective, Randomized, Controlled study to evaluate the efficacy of applying Prevena Plus to closed surgical incision in patients undergoing Complex Abdominal Wall Reconstruction and other major laparotomy procedures with biological mesh vs SOC.”

Jerry L. Nadler, M.D., dean of the School of Medicine and professor of medicine and pharmacology, received a $162,088 grant from the NIH for “Role of 12-lipoxygenase and 12-HETE signaling in beta-cell dysfunction.”

Karen Seiter, M.D., professor of medicine, received a $42,432 grant from Jazz Pharmaceuticals for “A Phase 1 Trial to Evaluate the Potential Impact of Renal Impairment on the Pharmacokinetics and Safety of CPX-351 (Daunorubicin and Cytarabine) Liposome for Injection Treatment in Adult Patients with Hematologic Malignancies Patients with Hematologic Malignancies.”

Aalok Singh, M.D., assistant professor of pediatrics, received a $21,625 grant from Boston Children’s Hospital for “Understanding COVID-19 among critically children in the Pediatric Acute Lung Injury and Sepsis Investigator’s (PALISI) Network.”

Robert Vincent, M.D., professor of pediatrics, received $4,410 from Columbia University for his participation in their NIH grant for “Linking State Medicaid and Congenital Heart Surgical Registry Data: Building Capacity to Assess Disparities in Longitudinal Outcomes and Value for Children with Congenital Heart Disease.”

Steven Wolf, M.D., clinical professor of pediatrics, received a $60,000 grant from Children’s Health and Research Foundation, Inc. for “Pediatric Epilepsy & Neurology Fund.”

Weekly NIH Announcements and NIH Funding Opportunities

NYMC Office of Research Administration: Learn more about funding opportunities here.
SOM Students Feel Supported in Research with Many Opportunities to Publish

One of the hallmarks of the SOM is the multiple opportunities for students to publish alongside faculty. **Sean Lynch**, SOM Class of 2021, and **Sivan Shahar**, SOM Class of 2022, are prime examples of that with Mr. Lynch already having published five times and Ms. Shahar doing so twice during their years at NYMC. The latest study, “Psychiatric Emergencies during the Height of the COVID-19 Pandemic in the Suburban New York City Area” was published in the *Journal of Psychiatric Research* in October of 2020.

Faculty authors included Stephen J. Ferrando, M.D., chair and Har Esh Professor of Psychiatry and Behavioral Sciences; Lidia Klepacz, M.D., assistant clinical professor of psychiatry and behavioral sciences; Rhea Dornbush, M.D., professor of psychiatry and behavioral sciences; Abbas Smiley, M.D., Ph.D., research assistant professor of surgery; Ivan Miller, M.D., assistant professor of clinical emergency medicine; Mohammad Tavakkoli, M.D., M.P.H., M.S., clinical assistant professor of psychiatry and behavioral sciences; and Abraham Bartell, M.D., M.B.A., clinical associate professor of psychiatry and behavioral sciences.

“Being involved in cutting edge research, particularly during a time when clinical and volunteer activities were suspended due to the pandemic, was extremely rewarding and allowed us to feel like we were still able to give back,” says Mr. Lynch and Ms. Shahar. “We were also among the first to nationally publish on this topic which was very exciting.”

“Sean and Sivan are phenomenal medical students, who are highly motivated and consistently involved throughout the COVID-19 pandemic,” says Dr. Ferrando. “They have been essential to our department’s ability to establish a research program with multidisciplinary faculty, students and residents, aimed at addressing some of the critical clinical questions related to COVID-19. We welcome their ongoing involvement and encourage other students to take part in clinical research. Such experience can be an invaluable part of their medical education.” [Read the full story on students’ opportunity to publish.]

Youxin Guan on Conducting Research and Supporting Fellow Students

Throughout her years at NYMC, **Youxin Guan**, SOM Class of 2021, has made both major inroads with her own research into the use of advanced MRI sequence to assess spinal lesions in cancer patients and supported the research of her fellow medical students through her involvement as a member of the SOM Student Research Committee.

With findings suggesting that non-invasive MRI technology can be used with patients with varied cancers to produce results similar to biopsy results, Ms. Guan’s research, which began after her first year at NYMC as part of the Memorial Sloan Kettering Cancer Center Medical Student Research Program, was published in September, in the top journal *Radiology*.

“Using advanced MRI sequences to monitor changes in spinal lesions over time among cancer patients is more desirable because imaging is quick, low risk and non-invasive, allowing for close monitoring as frequently as needed and producing diagnostic imaging evidence that is consistent with the corresponding gold standard biopsy results,” says Ms. Guan. “Another advantage is that this specific MRI modality can predict treatment response as early as two hours post-radiation therapy, giving physicians an idea whether or not to adjust the treatment plan to achieve the optimal outcome as early as possible.”

Supporting her fellow students in their own research, Ms. Guan has been a member of the Student Research Committee since her first year at NYMC. “The big project at that time was to get the Medical Student Research Seminar Series up and running,” she says. “It was our goal to expand on what Erin Caraher, M.D. ’20, and Jayaji More, M.D. ’20, the founders of the Research Committee, had established for the research seminar series, and make it into an integral part of the research concentration curriculum.” [Read full story about Youxin Guan.]

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NYMC Students Receive Touro Fellowship Grants to Support Research

Two NYMC students – **Stella Iskandarian**, SOM Class of 2023, and **Saqlain Javed**, an M.S. Candidate in the GSBMS – were the fortunate recipients of $3,000 Student Research Fellowship Grants from the Touro College and University System (TCUS) to support their research. The goal of the competitive program is to provide support for high quality, student-initiated summer research projects across the TCUS.

Working under the mentorship of Jana Veliskova, M.D., Ph.D., professor of cell biology and anatomy, obstetrics and gynecology and of neurology, Ms. Iskandarian’s project explored sex differences in brain excitability and cognitive disturbances following Traumatic Brain Injury (TBI) associated with severe stress. “TBI leads to cognitive and behavioral disturbances and can lead to post-traumatic epilepsy,” she says. “These negative outcomes are more common in victims who suffered severe stress at the time of TBI suggesting an additive effect.”

While clinical studies show that sex differences exist in sensitivity to TBI-induced brain injury and in response to severe stress, many pre-clinical studies focus more on male subjects. Therefore, Ms. Iskandarian chose to focus her research on the use of the double trauma TBI model (acute severe stress + TBI), which was pioneered by Dr. Veliskova, to study female rats in order to develop more adequate data and knowledge to treat female patients.

“I chose this project because it was important for me to incorporate what I am truly passionate about in my journey to becoming a practicing physician-scientist,” says Ms. Iskandarian. “In addition to fulfilling my curiosities in neuroscience, I want to do my part in addressing the importance and complexity of women’s health and in expanding the knowledge base that we have in order to do right by our female patients. I’m extremely thankful for the opportunity to work with Dr. Veliskova, who shares this vision, has done immense work in the field and has helped me understand how I may apply my specific interests into academic work.”

Mr. Javed, working under the mentorship of Christopher Leonard, Ph.D., interim chair and professor of physiology, explored the possible causes of cataplexy, an abrupt episode of muscle weakness and postural collapse while fully conscious, which is related to narcolepsy.

“A loss of neurons that synthesize the neuropeptide orexin, which is associated with the sleep-wake cycle, produces the sleep disorder narcolepsy with cataplexy in humans and animals,” says Mr. Javed. “How symptoms of this disorder come about are not well understood, but evidence indicates that cataplexy can be prevented by restoring orexin actions at serotonergic neurons in the brainstem.”

To gain a better understanding of how orexin acts on these serotonergic neurons, Mr. Javed further examined the sodium leak channel (NALCN) to try to determine if NALCN protein is localized to serotonergic neurons. “Our preliminary findings indicate that NALCN is present in serotonergic neurons and some of their neighboring cells. After we successfully knock out NALCN in this region, we will then be able to test whether the loss of the NALCN channel prevents orexin action on the neurons. This finding could identify another molecular target in the pathway producing cataplexy and provide a potential target for future therapeutic intervention.”
Faculty Publications & Updates

NYMC faculty are notable scholars and researchers who are recognized for their accomplishments and published in leading journals across a wide range of health science disciplines. This listing represents just a small sample.

The presentation on Frailty in Older Odontoid Fracture Patients is an Independent Risk Factor for Increased Complication Rates and Longer Hospital Stays by Peter M. Rhee, M.D., professor of surgery, Patrice L. Anderson, M.D., assistant professor of surgery, and Christian Bowers, M.D., former assistant professor of neurosurgery, given at the 2020 Clinical Congress Conference received the Excellence in Research Award.


Xiang D. Dong, M.D., clinical associate professor of surgery, and Roberto C.M. Bergamaschi, M.D., Ph.D., professor of surgery, published “Impact of Chemotherapy on Primary Colon Cancer” in Techniques in Coloproctology.

Supriya Jain, M.D., assistant professor of pediatrics and radiology, Sheila M. Nolan, M.D., assistant professor of pediatrics, Aalok R. Singh, M.D., assistant professor of pediatrics, Leif C. Lovig, M.D., assistant professor of pediatrics, Rachel Biller, M.D., assistant professor of pediatrics, Aditi Kamat, M.D., assistant professor of pediatrics, Markus Erb, M.D., assistant professor of pediatrics, Erin S. Rescoe, M.D., clinical assistant professor of pediatrics, Gary Tatz, M.D., assistant professor of pediatrics, and Michael H. Gewitz, M.D., professor of pediatrics, published “Myocarditis in Multisystem Inflammatory Syndrome in Children Associated with Coronavirus Disease 2019” in Cardiology in Review.

Andrzej Jedynak, M.D., M.S., assistant professor of radiology, Pierre-Yves Sonke, M.D., assistant professor of radiology, Irene A. Weiss, M.D., clinical associate professor of medicine, and Wilbert S. Aronow, M.D., professor of medicine, published “Testicular Adrenal Rest Tumors Diagnosed on Ultrasound with a History of Congenital Adrenal Hyperplasia and Medication Non-Compliance” in Archives of Medical Science.

Christopher C. Nabors, M.D., Ph.D., assistant professor of medicine, Chitti R. Moorthy, M.D., chair and clinical professor of radiation medicine, Edward C. Halperin, M.D., chancellor and chief executive officer and professor of radiation medicine and pediatrics, Sei Iwai, M.D., professor of medicine, William H. Frishman, M.D., professor of medicine and pharmacology, and Jason T. Jacobson, M.D., associate professor of medicine, published “Noninvasive Radioablation of Ventricular Tachycardia” in Cardiology in Review.


Shetal I. Shah, M.D., professor of pediatrics, Edmund F. La Gamma, M.D., professor of pediatrics and of biochemistry and molecular biology, and Heather L. Brumberg, M.D., M.P.H., professor of pediatrics and professor of clinical public health, published “Respiratory Severity Score Greater than Or Equal to 2 at Birth is Associated with an Increased Risk of Mortality in Infants with Birth Weights Less than Or Equal to 1250 g” in Pediatric Pulmonology.


Shoujin Hao, M.D., Ph.D., research assistant professor of pharmacology, Hong Zhao, Ph.D., assistant professor of pathology, Zbigniew Darzynkiewicz, M.D., Ph.D., professor of pathology, microbiology and immunology and of medicine, and Nicholas R. Ferreri, Ph.D., professor of pharmacology, published “MicroRNA-133a-Dependent Inhibition of Proximal Tubule Angiotensinogen by Renal TNF (Tumor Necrosis Factor)” in Hypertension.


See full list of recent Faculty Publications.