



Grand Lodge of New York

CURRENTS

A publication by the Masonic Medical Research Institute

IN THIS EDITION

MMRI: Battling COVID-19 as a Community

COVID-19 and the Heart

MMRI Restructures

Taking a Break can Lead to Breakthroughs

Charitable Gift Annuity: Guaranteed Income, Tax Savings and a Gift to Charity

MMRI Investigators Compete for a Total of \$15 Million in Grant Funding

Multi-Year Renovation Update

MMRI Welcomes New Staff

Through the Microscope

Science Publications from our MMRI Team

MMRI in the News

MMRI: BATTLING COVID-19 AS A COMMUNITY



(Left to Right): Ryan Pfeiffer, Research Associate; Dr. Nathan Tucker, Assistant Professor; Mayurika Desai, Research Assistant, are the devoted team conducting COVID-19 testing for MVHS and our community.

As of June 3, 2020, the Masonic Medical Research Institute (MMRI) and the Mohawk Valley Health System (MVHS) have partnered to process MVHS COVID-19 tests at MMRI. This joint venture will decrease the turnaround time for COVID-19 test results for MVHS patients and will help identify those positive for the virus faster, providing a significant benefit to MVHS, its patients and our community.

Under this new partnership, patient samples from the MVHS are sent to MMRI, where researchers conduct and return results for COVID-19 testing. Turnaround time for results to MVHS is typically between 12-36 hours, with most results returned within the same day. Prior to this, COVID-19 testing in the community was limited, and had to be sent out of state, often causing a delayed processing time of between 3-7 additional days.

By partnering, MMRI and MVHS have found a "local solution to a national problem," as nicely stated by Darlene Stromstad, FACHE, MVHS President/CEO. "We are proud to be able to serve our community and further help in the fight against COVID-19," said Maria Kontaridis, PhD, Executive Director of MMRI. "We hope these efforts can soon expand into additional partnerships within the local community, as well as, help increase the rapidity of tests within our area."

Additionally, the MMRI team has been working non-stop on numerous COVID-19 related efforts. Dr. Nathan Tucker, Assistant Professor at MMRI who oversees the COVID-19 testing at the institute, has recently published a manuscript related to the effects of COVID-19 on cardiac health. In addition, Drs. Maria Kontaridis, Zhiqiang Lin, Sathya Unudurthi, Chase Kessinger and Jason McCarthy, all faculty members at

(cont. on next page)

the MMRI are also actively pursuing research related to the virus.

The COVID-19 testing at MMRI is being primarily conducted by two talented employees, Ms. Mayurika Desai, Research Assistant, and Mr. Ryan Pfeiffer, Research Associate, both of whom also took it upon themselves to hand make masks and hair bonnets for our local medical facilities. R.W. David Schneeweiss, Chairman of the MMRI Board of Directors, was also involved in COVID efforts, donating 100 N95 masks to the MMRI. In compliance with new safety procedures, Richard Thomas, Security, and Lisa Ingerham, Administrative Assistant, have overseen the daily temperature scans and questionnaires now required of all MMRI employees and visitors entering the Institute. Finally, Dr. Chase Kessinger, Instructor at MMRI, has also designed and fashioned mask extenders using our 3D printer in order to help make masks more comfortable for our employees.

"I am deeply grateful and proud of the amazing MMRI team for banding together during these times and going above-and-beyond to help. Their efforts and dedication are a true testament to the success of the Institute and the bright future we are moving towards and looking forward to," said Dr. Maria Kontaridis, Executive Director, Gordon K. Moe Professor and Chair of Biomedical Research and Translational Medicine, Director of Research.



(Pictured top left): Richard Thomas, Security; (Pictured top right): Lisa Ingerham, Administrative Assistant; (Pictured middle): Mask extenders fashioned by Dr. Chase Kessinger, Instructor; (Pictured right): Ryan Pfeiffer, Research Associate; (Pictured bottom left): Hand made masks made by MMRI staff; (Pictured bottom right): Mayurika Desai, Research Assistant.





Dr. Nathan Tucker, Assistant Professor at MMRI, collaborates with the Broad Institute, the University of Pennsylvania, and Bayer US on COVID-19 research.

Nearly 20% of all COVID-19 associated deaths are from cardiac complications, yet the mechanisms from which these complications arise have remained a topic of debate in the cardiology community. One hypothesis centers on the infection of the heart itself, but the understanding of what types of cells may be infected is unclear. To address this, MMRI Assistant Professor, Dr. Nathan Tucker, in collaboration with the Broad Institute, the University of Pennsylvania, and Bayer US, report the distribution of the SARS-CoV-2 receptor in a manuscript titled, "Myocyte upregulation of ACE2 in cardiovascular disease," published in the journal *Circulation*.

COVID-19 (SARS-CoV-2) infects cells through a particular cellular molecule, termed ACE2. To assess levels of this molecule in different patient populations and in response to common hypertension medications (ACE inhibitors), the group applied state-of-the-art single nucleus sequencing technologies in human heart samples. From these studies, they were able to conclude that the amount of the viral receptor is increased in patients with pre-existing cardiac conditions, but only in the beating cells of the heart, termed cardiomyocytes. Additionally, they found that the effect of anti-hypertension

medications, termed ACE inhibitors, do not appreciably affect the levels of ACE2 in a way that would support any changes in clinical use of these medications.

"This is but an early step in our understanding of cardiac pathology in people who contract COVID-19," said Tucker, the first author of the manuscript. "There's much more work to do. As an example, we are already working to establish direct evidence of cardiac infection, while also examining receptor distributions in other populations and through other approaches. We hope to provide more information as soon as we are able."

While just a piece of a very complex puzzle, this study offers a potential explanation as to why patients with pre-existing heart conditions are more likely to suffer severe cardiac symptoms from COVID-19 infection. Importantly, it also provides data on the effects of anti-hypertensive medications, supporting previously published findings urging patients continued use of ACE inhibitors from the American Heart Association, American College of Cardiology, and European Society of Cardiology.

The MMRI is dedicated to continuing its research efforts in the recent coronavirus

pandemic. The institute has ongoing efforts to understand mechanisms by which COVID-19 worsens both cardiac and pulmonary functions, to identify potential novel therapeutic targets for treating patients, and to understand the potential long-term consequences of those who have recovered from this disease. We hope to report the results of these findings soon. For more information about MMRI, please visit mmri.edu.

Lodge Presentations

MMRI's Fraternal Relations & Development Associate, Bro. Anthony Cucci has been traveling around the state giving informational presentations about the cutting-edge research conducted at MMRI.

Since starting in 2019, Anthony has presented at more than 30 lodges and events statewide. However, we are doing things a bit differently in 2020, due to the outbreak of the global pandemic, COVID-19. Though he can no longer be on the road, Anthony is always available to virtually attend your next lodge meeting. He is excited for the opportunity to share with you the mission of MMRI and introduce you to our expert science staff and their research through a powerpoint and a digital video conference. If you are interested in having MMRI virtually visit your next meeting, please reach out directly to Bro. Anthony Cucci:

✉ acucci@mmri.edu

☎ 315.624.7492

MASONIC MEDICAL RESEARCH INSTITUTE RESTRUCTURES

The MMRI has seen significant change since Dr. Maria Kontaridis started in January 2018. Under her supervision as Director of Research for the past two years, the MMRI has vastly grown, increasing their number of employees, transitioning from Masonic Medical Research Laboratory to MMRI, rebranding, and diversifying their research portfolio. "We have been repeatedly impressed and made proud by our decision to hire Dr. Kontaridis. Her ambition is inspiring, and we are excited to bear witness to the growth of the MMRI in the coming months and years under her outstanding leadership" said Alvaro Quiroga, President of the MMRI Board of Directors.



(Pictured left): Dr. Maria I. Kontaridis, Executive Director; (Pictured right): Susan Bartkowiak, Director of Administration and Grants Administrator.

Effective May 6, 2020, Dr. Kontaridis, Director of Research at the MMRI, was promoted to Executive Director of the Institute. Along with her promotion, Susan Bartkowiak who has been the Interim Director of Administration for the past year, was named Director of Administration. Mrs. Bartkowiak will also continue her work as Grants Administrator.

The restructuring of leadership will increase the effectiveness of expansion goals for the future. As the Institute continues to branch into new areas of research, attract more talented scientists,

and increase laboratory space, leadership is of the utmost importance in getting there. "Under this new structure, and with the hard work of our entire leadership team, the MMRI can look forward to great things. I am proud to serve on the Board of Directors and excited to be a part of this beneficial transition," said David Schneeweiss, Chairman of the MMRI Board of Directors. "I am grateful to the Board and the entire MMRI team for trusting me with this new venture. I am

excited to continue leading my team as we strive towards new heights," said Mrs. Bartkowiak.

"As Executive Director, I look forward to the bright future of MMRI, knowing we have the ability and dedication to continue our expansion of research efforts towards life changing discoveries, treatments, and, hopefully, cures," said Dr. Kontaridis.

TAKING A BREAK CAN LEAD TO BREAKTHROUGHS

Before COVID-19 hit full force, the MMRI was thankful for the nice summer weather the new veranda allowed us to enjoy. With the new social distancing procedures, the veranda now acts as a safe place for MMRI employees to enjoy their lunch and take a short mental break. Indeed, these spaces for deep thought may lead to great ideas and new discoveries. The veranda originally opened in March, right before quarantine for COVID-19 went into effect, and we held an impromptu barbeque in celebration of its opening, where faculty and staff gathered to enjoy the sun, hamburgers, hot dogs, and chips. We look forward to a time when we can resume these festivities and enjoy many more MMRI gatherings! The veranda was made possible thanks to David Schneeweiss, Chairman of the MMRI Board of Directors, who donated the funds necessary to build and furnish this lovely and cherished outdoor space.



MMRI staff enjoys a barbeque lunch out on the new veranda on March 12, 2020 (before COVID-19).



MASONIC MEDICAL RESEARCH INSTITUTE

CHARITABLE GIFT ANNUITY:

Guaranteed Income, Tax Savings and a Gift to
Charity - All in One

Did you know you can donate to MMRI and guarantee lifetime income for you, yourself, and/or someone you love, as well as receive important tax benefits?

Yes, a **Charitable Gift Annuity (CGA)** can create income for life, provide an income tax deduction, avoid capital gains tax and help safeguard the important mission of the Masonic Medical Research Institute (MMRI) for years to come.



HERE'S HOW IT WORKS:

If you make an irrevocable gift of \$10,000 or more in cash or appreciated securities, MMRI will pay you and/or a loved one, guaranteed fixed payments for life, regardless of market fluctuations or inflation. You will receive a charitable income tax deduction in the year you make your gift and a portion of your annuity payment will be tax-free.

If you make this gift using appreciated securities, you may have the added benefit of avoiding capital gains tax.

Your payment percentage is largely based on age, so the older you are, the higher your rate will be. If you defer your income payments to a future date, you will receive a higher payment rate, but still enjoy a charitable income tax deduction in the year you make your gift.

In addition to personal benefits, you will be providing a future gift to MMRI. At your death, the assets remaining in your annuity will be available for MMRI to use in support of improving health and quality of life for all humankind.

If you are interested in learning how a CGA can benefit you, please contact **MMRI's Development team at 315-735-2217**.

We will gladly prepare a personal gift illustration which clearly describes your income payments, tax benefits and more. This illustration is for information purposes only and you are under no obligation to participate. We are always happy to answer any questions you and/or your financial advisors may have.

MMRI INVESTIGATORS COMPETE FOR A TOTAL OF \$15 MILLION IN GRANT FUNDING

Federal grant funding is an important and integral component of medical research, as it allows our investigators the resources to conduct cutting-edge science. These types of grants, typically above \$1M over the course of 4-5 years, are highly competitive, with grants awarded only to those who score in the top 10-15% of their peers from across the US and all academic and research institutions. This year, the start of summer marked a busy time for grant applications at MMRI. For the June/July cycle, 7 investigators submitted 10 competitive grant proposals to the National Institutes of Health (NIH), the Department of Defense (DOD), and the Simons Foundation. Altogether, the grants totaled over \$15 million. The

projects proposed focus on a number of topics, including cardiac health, lupus, autism, and COVID-19 induced acute respiratory distress syndrome, and involve collaborative efforts with researchers from across the country, including UCLA, Beth Israel Deaconess Medical Center, Massachusetts General Hospital, and Vanderbilt University. In fact, two of these proposals include international collaborations with investigators from Spain and Australia, demonstrating the extensive global reach of the MMRI. While we do not yet know exactly how many of these proposals will get funded, as the review process for federal grants takes upwards of 9 – 12 months, the nature and quality

of these competitive applications gives us hope for great success. Given the current pandemic, the Institute is particularly proud of our science team for diligently working on their proposals and their science, even in the face of the novel coronavirus. For the size of our Institute, this collective submission exemplifies the immense dedication and talent of the MMRI team. We thank all of those who submitted proposals, as well as, Mrs. Susan Bartkowiak, Director of Administration and Grants Administrator, for guiding the investigators through the submission process and ensuring all materials were completed in a timely fashion.

MULTI-YEAR RENOVATION UPDATE

In Fall of 2019, the MMRI embarked upon phase II of a multi-year renovation project: the remodeling of the basement level laboratory space. When completed, this area will provide enough modern laboratory space to accommodate three new principal investigators, as well as, space for additional state-of-the-art facilities. Even when faced with a forced shutdown by the ongoing pandemic, the work has progressed rapidly and will soon be completed. Additionally, as part of this renovation and to accommodate our unprecedented growth, we have expanded our back parking lot, almost tripling its size. Phase II is expected to wrap up in mid-August, with a final reveal date at the end of that month. Once complete, we will continue this momentum and break ground on phase III, for which we received a \$1.2 million grant from the New York State Regional Economic Development Council. These renovations will complete the remodeling of our current building, modernizing the space by adding 5,070 square feet of laboratory space needed to provide room for two additional research groups, building laboratory core facilities, and providing advanced services for our talented researchers to conduct their cutting edge science.



(Pictured top left): Beginning of phase II of construction (Pictured top right): Phase II progress of construction; (Pictured bottom): Our newly expanded parking lot allotted for MMRI employees.

MASONIC MEDICAL RESEARCH INSTITUTE WELCOMES NEW STAFF



Rena Collandra

Research Assistant

Rena Collandra joined MMRI in July as a Research Assistant working for Dr. Chase Kessinger. Originally from Utica, Rena attended the University at Albany where she majored in biology, but boomeranged back to the Utica area upon graduation. Before MMRI, she worked at the SUNY Research Foundation and gained research experience studying HER2+ breast cancer. As a research assistant, Rena will assist with the day-to-day operations within the histology and imaging cores. Rena views MMRI as, “a great place to do research and be in an environment where a diverse range of concepts are being studied.” She is excited to be a part of the MMRI team and for the great opportunity to grow and learn new skills.

Edgardo Colon

Lead Maintenance Mechanic

Edgardo Colon returned to the MMRI in late June as Lead Maintenance Mechanic. We are so happy that he has chosen to come back and once again be a part of the MMRI team. As lead maintenance mechanic, he will work to ensure the building is running safely and effectively inside and out, and that all systems are operating correctly. He is happy to be back and is looking forward to helping MMRI with renovations and new daily improvements.



Hillary Cote

Development Associate/Data Analyst

Hillary Cote started at MMRI in July, filling a newly created position, Development Associate/Data Analyst. Hillary is from Worcester, MA, and holds a history degree from Hartwick College and a completed fellowship in nonprofit leadership from the University of Albany’s Rockefeller College. Before joining the MMRI, she worked in fundraising operations at the Friends of Bassett Healthcare Network and at Boston Medical Center. “I was thrilled to join MMRI when I saw the innovation and forward thinking of my new colleagues. I am passionate about healthcare, and the drive here to improve lives by continuously developing research to meet the needs of our global community is incredible,” said Hillary.

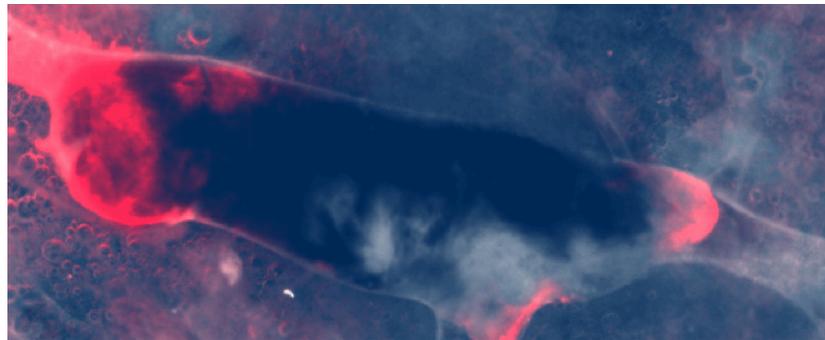
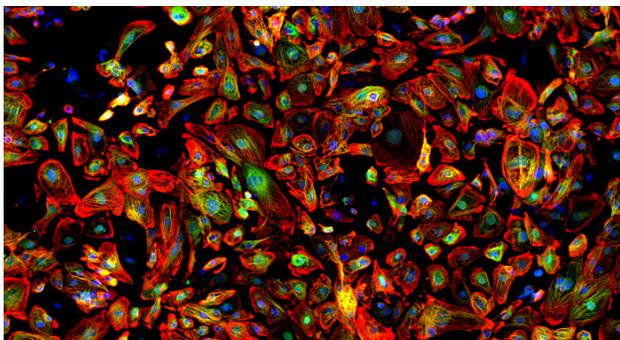
Levi Legler

Research Assistant

Levi Legler joined MMRI in June as a Research Assistant. Levi recently graduated from SUNY Polytechnic Institute with a Bachelor of Science, where he majored in biology and minored in both chemistry and psychology. As a research assistant in the Kontaridis laboratory, Levi performs data collection, assists with research science projects, and maintains general lab supplies and solutions. Levi is excited to be working at the MMRI, seeing it “as the best opportunity possible to continue growing as a scientist and as a person.”



THROUGH THE MICROSCOPE



(Left to Right): Image captured by Research Assistant, Mayurika Desai; Image captured by Instructor, Dr. Chase Kessinger.

SCIENCE PUBLICATIONS FROM OUR MMRI TEAM

aYAP modRNA reduces cardiac inflammation and hypertrophy in a murine ischemia-reperfusion model. Chen J, ..., Kontaridis M, ..., Lin Z. *Life Sci Alliance*. 2019 Dec 16;3(1):e201900424.

Remodeling Promotes Proarrhythmic Disruption of Calcium Homeostasis in Failing Atrial Myocytes. Shiferaw Y, Aistrup GL, et al., *Biophys J*. 2020 Jan 21;118(2):476-491.

The sixth international RASopathies symposium: Precision medicine-From promise to practice. Gripp KW, ..., Kontaridis MI, et al., *Am J Med Genet A*. 2020 Mar;182(3):597-606.

Loss of UGP2 in brain leads to a severe epileptic encephalopathy, emphasizing that bi-allelic isoform-specific start-loss mutations of essential genes can cause genetic diseases. Perenthaler E, ..., Ercan-Sencicek AG, et al, *Acta Neuropathol*. 2020 Mar;139(3):415-442.

Transethnic Genome-Wide Association Study Provides Insights in the Genetic Architecture and Heritability of Long QT Syndrome. Lahrouchi N, ..., Pfeiffer R, et al., *Circulation*. 2020 May 20.

Hand Sanitizers: A Review on Formulation Aspects, Adverse Effects, and Regulations. Jing JLJ, ..., Bose RJC, McCarthy JR, et al., *Int J Environ Res Public Health*. 2020 May 11;17(9):3326.

Protein arginine methyltransferase 6 mediates cardiac hypertrophy by differential regulation of histone H3 arginine methylation. Raveendran VV, ..., Poizat C. *Heliyon*. 2020 May 12;6(5):e03864.

Transcriptional and Cellular Diversity of the Human Heart. Tucker NR, et al., *Circulation*. 2020 May 14.

Reconstructed Apoptotic Bodies as Targeted “Nano Decoys” to Treat Intracellular Bacterial Infections within Macrophages and Cancer Cells. Bose RJC, ..., McCarthy JR, et al., *ACS Nano*. 2020 May 26;14(5):5818-5835.

Triggered Ca²⁺ Waves Induce Depolarization of Maximum Diastolic Potential and Action Potential Prolongation in Dog Atrial Myocytes. Gussak G, ..., Aistrup GL, Cordeiro JM, Goodrow R, et al., *Circ Arrhythm Electrophysiol*. 2020 Jun;13(6):e008179.

Direct SARS-CoV-2 infection of the heart potentiates the cardiovascular sequelae of COVID-19. Bose RJC, McCarthy JR. *Drug Discov Today*. 2020 Jun 24:S1359-6446(20)30249-X.

Attenuation of Oxidative Injury with Targeted Expression of NOX2 shRNA Prevents Onset and Maintenance of Electrical Remodeling in the Canine Atrium: A Novel Gene Therapy Approach to Atrial Fibrillation. Yoo S, ..., Aistrup GL, et al., *Circulation*. 2020 Jul 20.

MASONIC MEDICAL RESEARCH INSTITUTE IN THE NEWS

The following media outlets have been actively following the growth and success of the MMRI. Between our partnership with MVHS for COVID-19 testing, Dr. Nathan Tucker’s dedication to COVID research and the restructuring of the Institute, these outlets have the scoop. For links to the articles, follow MMRI on social media and our website.



Virtually connect with MMRI!

-  <http://www.mmri.edu>
-  /MasonicMedicalResearchInstitute
-  @Masonic_Medical
-  [Linkedin.com/company/masonic-medical-research-laboratory](https://www.linkedin.com/company/masonic-medical-research-laboratory)
-  @MasonicResearch



MMRI featured in the Observer-Dispatch newspaper on Wednesday, July 15, 2020.



CURRENTS

Grand Lodge of New York

A publication by the Masonic Medical Research Institute

MASONIC MEDICAL RESEARCH INSTITUTE
2150 Bleecker Street • Utica, New York 13501-1787
Phone: 888-888-6675
www.mmri.edu

Every Heartbeat Counts™

Connect to what's new in medical research via social networking sites:







To subscribe to our e-newsletter and updates, go to www.mmri.edu, insert your email address under e-newsletter and click "sign up" on our home page

Board of Directors

DAVID F. SCHNEEWEISS, MBA
Chairman
First Erie District

MICHAEL A. CHAPLIN, MD
First Manhattan District
Seventh Manhattan District

VIRGILIO S. QUIJANO
Fourth Manhattan District

ALVARO F. QUIROGA
President
Tenth Manhattan District

DAVID D. GOODWIN
Southern Tier District

SHELDON B. RICHMAN, ESQ.
First Manhattan District

ROBERT A. HEWSON, DPM
Vice President
First Erie District

PETER R. GRAY, MD, PH.D., FACC
Saratoga-Warren-Washington District

FRANCESCO SANTONI-RUGIU, MD
Tenth Manhattan District

JAMES D. SWAN, JR.
Secretary
Onondaga District

PAUL A. GUERRERO, CMR
Fourth Manhattan District

LAURENCE I. SUSSMAN
Seventh Manhattan District

VINCENT CUNZIO, CPA
Treasurer
Second Westchester-Putnam District

PASQUALE IMBIMBO, JR.
Saratoga-Warren-Washington District

DIRECTORS EMERITI

JOHN P. CHANG, R.PH.
PAUL N. O'NEILL
VICTOR G. WEBB
ALBERT J. WRIGHT, III

RICHARD J. MILLER, JR., ESQ.
Old Seventeenth District

MMRI ADMINISTRATION

MARIA KONTARIDIS, PH.D.
Executive Director
Gordon K. Moe Professor and Chair of Biomedical Research and Translational Medicine
Director of Research

SUSAN BARTKOWIAK
Director of Administration
Grants Administrator

AMY PIETRAFESA, SPHR
Director of Human Resources

LISA COOPER, CPA
Controller

JASON MCCARTHY, PH.D.
Scientific Operations Manager
Associate Professor