



THE OHIO STATE UNIVERSITY

WEXNER MEDICAL CENTER

Dorothy M. Davis Heart and Lung Research Institute

Quarterly Newsletter

Spring 2023



*John Warner, MD, Wexner Medical Center CEO
with members of the Ana Mora, MD and
Mauricio Rojas, MD labs.*

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[www.https://medicine.osu.edu/departments/davis-heart-lung-research-institute](https://medicine.osu.edu/departments/davis-heart-lung-research-institute)

A Message from the Director -

With the arrival of spring, comes excitement for new beginnings and growth at Ohio State. Remarkable progress is evident every day in the host of new buildings popping up all across campus, including the new inpatient tower, Interdisciplinary Health Sciences Center, and several projects in the Carmenton Innovation District on West Campus. The five-story, 305,000 square-foot Pelotonia Research Center (the building formerly known as the Interdisciplinary Research Facility) nears completion with occupancy to begin this May/June. The DHLRI team recently toured the building and were struck by the extent to which the final product is surpassing expectations in terms of the design and overall quality of the space – this truly will be a one-of-a-kind research facility on campus!

Beyond bricks and mortar, the season brings about new beginnings for our extremely talented staff, faculty and trainees. The DHLRI was thrilled to welcome the new Wexner Medical Center CEO and Executive Vice President, **John Warner, MD, MBA** for a tour within the first week of his arrival on campus. Dr. Warner is an interventional cardiologist and former CEO of the UT Southwestern Health System who brings a wealth of leadership experience to the position. We were also very pleased to announce **Natalia Higuitero-Castro, PhD** as Director of Advanced Therapeutics & Engineering in the DHLRI. In this new role, Dr. Higuitero-Castro will help guide strategic planning to grow innovation and technology transfer within the DHLRI. Her own research focuses on development of non-viral gene delivery and tissue regeneration with applications across organ systems. The Advanced Therapeutics & Engineering area compliments existing focus areas in Cardiovascular, Pulmonary and Metabolism research. In a larger sense, this initiative rounds out a highly distinguished leadership team for the DHLRI with Dr. Higuitero-Castro (Advanced Therapeutics & Engineering) joining **Doug Lewandowski, PhD** (Cardiovascular lead and Director of Translational Research), **Ana Mora, MD** (Pulmonary lead and Director of Lung Research), and **Kristin Stanford, PhD** (Metabolism lead and Associate Director) to help guide strategic planning and growth for DHLRI. An important component of our strategic plan is support for competitive grant submissions from our faculty. In partnership with the College of Medicine Office of Research and under the leadership of **Loren Wold, PhD**, DHLRI is preparing to launch a grant writing workshop for early career faculty working on their first

R01. Stay tuned for official announcement and details in the weeks ahead. This program will be the first in a series of offerings to help faculty across career stages. In a similar vein, we are always looking for ways to expand research infrastructure through shared equipment and resources. DHLRI Shared Equipment Committee has approved purchase of a Cytex Aurora cell sorter, which will pair with a recently acquired flow cytometry system to provide a state-of-the-art shared resource for our members. We are also eager for launch of the Comprehensive Cardiovascular Biorepository later this spring under the leadership of DHLRI investigator and Associate Dean of Convergent Research **Rich Gumina, MD, PhD**. The new biorepository will be run through the College of Medicine Office of Research with support from DHLRI.

In addition to helping our existing investigators achieve success, we will be active recruiting new faculty to complement existing strengths and enhance competitiveness for large, programmatic grants. This work will be done in collaboration with several departments/divisions across campus, including longstanding partners like Cardiology, Pulmonary, Surgery, Physiology & Cell Biology (PCB), Emergency Medicine, and Biomedical Engineering. Further, we are excited to partner with **Matt Ringel, MD** in his role as inaugural Chair of the newly formed Department of Molecular Medicine and Therapeutics (MMT). This basic science department will have focus areas in fundamental therapeutics, stem cell biology & regenerative medicine, and molecular medicine & systems biology.

In short, great things are happening in and around the DHLRI this spring! Now on to celebrating your accomplishments over the past quarter!

Sincerely,



Thomas J. Hund, PhD
Professor, Departments of Internal Medicine and Biomedical Engineering
Director and William D. and Jacquelyn L. Wells Chair,
Dorothy M. Davis Heart and Lung Research Institute

Kudos -

Congratulations to all of our investigators who were awarded extramural grants over the past quarter. Special shout-out to **Doug Lewandowski, PhD** (Endocrinology) and **Kristin Stanford, PhD** (Physiology & Cell Biology, PCB) who were awarded a \$3.1 million multi-principal investigator grant from the NIH National Heart Lung and Blood Institute to study the role of reciprocal responses of the heart and adipose tissue to pressure overload stress on the heart.

Kristy Townsend, PhD (Neurosurgery) was awarded a \$1.2 million from the W.M. Keck Foundation to explore the neural feedback loop between the brain and adipose tissue.

Undergraduate students **Natalia Mendonca** and **Ellie Guilfoyle** (Natalia Higuita-Castro, PhD lab) were awarded highly competitive National Science Foundation Graduate Research Fellowships.

Natalia Medonca and Ellie Guilfoyle (Higuita-Castro Lab)



Kristy Townsend, PhD



Ellie Guilfoyle



Natalia Mendonca



Congrats to **Matthew Gorr, PhD** (Cardiac Surgery) and his team for their paper on the pulmonary effects of e-cigarette vapor exposure in utero, which was named as the 2nd most discussed article of 2022 in the American Journal of Physiology – Lung, Cellular and Molecular Physiology.

Amal Amer, MD (Microbial Infection & Immunity) and collaborators were the winners of the Ohio State Coolest Science Story of 2022 competition, for their research on COVID-19 treatment. Read about it [here](https://news.osu.edu/covid-19-treatment-prevention-is-coolest-ohio-state-science-story-of-2022/). (<https://news.osu.edu/covid-19-treatment-prevention-is-coolest-ohio-state-science-story-of-2022/>)



Matthew Gorr, PhD

Several of our members were recognized over the past quarter with national awards, honors, and invited talks. **Ana Mora, MD** (Pulmonary Critical Care Sleep Medicine, PCSSM) was named a recipient of the American Thoracic Society Recognition Award for Scientific Accomplishment. She will be recognized at the annual meeting in May. **Doug Lewandowski, PhD** (Endocrinology), received the 2023 Bernard and Joan Marshall Distinguished Investigator



Award and Lectureship of the British Society for Cardiovascular Research. **Joshua Joseph, MD** (Endocrinology) was elected into the American Society for Clinical Investigation (ASCI). The ASCI is one of the oldest and most esteemed nonprofit honor societies of physician-scientists, with membership by election only. He also gave a keynote talk at the Keystone Symposia – Adipose Tissue: Energizing Good Fat meeting. His talk was titled, “Social Determinants of Health and Psychosocial Stress: Advancing Health Equity from Populations to Molecular Mechanisms.” **Harpreet Singh, PhD** (PCB) was elected as the Chair of the Bioenergetics, Mitochondria, and Metabolism subgroup of the Biophysical Society. **Sarah Heissler, PhD** (PCB) was elected as the Chair of the Motility and Cytoskeleton subgroup. **Seth Weinberg, PhD** (Biomedical Engineering, BME) was elected as the Chair of the Bioengineering Subgroup. They will each serve as Chair-Elect for 2023-2024



Joshua Joseph, MD at his induction to the American Society for Clinical Investigation (ASCI).

Shyam Bansal, PhD (PCB) was selected as a Circulation Research Early Career Editorial Board Member from a highly competitive pool. Dr. Bansal was also invited to give a talk at the University of Cincinnati Department of Internal Medicine, Division of Cardiovascular Health and Disease Grant Rounds. His talk was titled, “Targeting T-cells in Ischemic Heart Failure: From Bench to Drug Discovery.” He also was chosen as a finalist for the Early Career innovator of the Year by the Ohio State Enterprise for Research, Innovation, and Knowledge for 2023. He also was chosen as a finalist for the Early Career innovator of the Year by the Ohio State Enterprise for Research, Innovation, and Knowledge for 2023. Dr. Bansal and DHLRI were mentioned in a Special Edition of TIME Magazine, The Future of Medicine. The article highlights innovations in treatments for heart disease with a specific mention of the immune system’s role in heart failure.

Orlando Simonetti, PhD (Cardiovascular Medicine) gave a keynote talk at the Annual Scientific Sessions of the Society of Cardiovascular Magnetic Resonance titled, "Opportunities for CMR to Change Global Clinical Practice." **Daniel Gallego Perez, PhD** (BME/Plastic Surgery) and **Natalia Higuera Castro, PhD** (BME/Neurosurgery) presented their work on extra cellular vesicle- and tissue nano transfection-driven therapies for NF1 at the Gilbert Family Foundation Gene Therapy Initiative Annual Meeting. Several DHLRI investigators and trainees attended and presented at the Gordon Research Conference on Cardiac Arrhythmia Mechanisms in Galveston, Texas. Four DHLRI Investigators were featured with talks including **Isabelle Deschenes, PhD** (PCB), **Vadim Fedorov, PhD** (PCB), **Przemyslaw Radwanski, PharmD, PhD** (Pharmacy) and **Thomas Hund, PhD** (Cardiovascular Medicine).



DHLRI researchers at the Gordon Research Conference on Cardiac Arrhythmia Mechanisms in Galveston, TX

Finally, kudos to our exceptional trainees recognized for their research over the past quarter. **Hannah Locins** (Kymberly Gowdy, PhD lab) was awarded the Mitzi and Prakash Nagarkatti Research Excellence Immunotoxicology Travel Award at the Society of Toxicology Meeting 2023. **Shanna Hamilton, PhD** (Terentyev lab) was named the BPS 2023 Young Bioenergeticist Award Winner. **Shridhar Sanghvi** (Harpreet Singh, PhD lab) was featured in the student spotlight in the BPS Bulletin: The Newsletter of the Biophysical Society. **Drew Nassal, PhD** (Tom Hund, PhD lab) won 1st place presentation award in the postdoc category at the Gordon Research Conference on Cardiac Arrhythmia Mechanisms. **D Ryan King, PhD** (Prez Radwanski, PhD lab) as well as members of several other DHLRI labs gave talks at the Biophysical Society (BPS) 2023 meeting in San Diego, California. **Andy Soltisz, Heather Struckman, and Louisa Mezache** (Sai Veeraraghavan, PhD Lab) were selected for oral presentations at the Focus on Microscopy 2023 conference. Undergraduate student **Shivangi Mohta** (Tom Hund, PhD lab) placed 2nd and **Mohammed Aidja** (Mark Ziolo, PhD lab) received an Honorable Mention in the Innovation in Medicine category at the Denman Undergraduate Research Forum. **Nickolai Seculov** (Kristin Stanford, PhD lab) placed 3rd and **Eleanor Richardson** (Noah Weisleder, PhD lab) received an Honorable Mention in the Health Under the Microscope category. Congrats to all of our students who participated!



Shivangi Mohta and Drew Nassal, PhD (Hund Lab) at the Denman Undergraduate Research Forum. Shivangi placed 2nd in the Innovation in Medicine category.

Transitions -

We are delighted to announce several new additions to the DHLRI Leadership and Administrative team!

Kristin Stanford, PhD was named Associate Director of the DHLRI and will work with the Team to help guide overall DHLRI strategic vision, planning, and execution.

Natalia Higuita Castro, PhD was named Director of Advanced Therapeutics & Engineering and will help define a vision for expanding innovation and tech transfer at DHLRI.



*Kristin Stanford, PhD
DHLRI Associate Director*



*Natalia Higuita-Castro, PhD
DHLRI Director of Advanced
Therapeutics & Engineering*

Seth Weinberg, PhD will serve as Chair of the Education Committee.

The DHLRI Administrative team welcomed **Dan Maloney** as the new Financial Analyst.



*Seth Weinberg, PhD
Chair, DHLRI Education
Committee*



*Dan Maloney
DHLRI Financial Analyst*

Happenings -

Starting in January, DHLRI kicked off a monthly DEI Workshop Series facilitated by **Sophia Antoun** from the Office of Diversity and Inclusion. The final session will take place on May 23 with a panel discussion including **Leon McDougle, MD**, Chief Diversity Officer for the Wexner Medical Center, **Sakima Smith, MD** and **Jennifer Sipos, MD**, Vice Chairs for Diversity and Inclusion in the Department of Internal Medicine. **Carol Bradford, MD**, Dean of the College of Medicine is also expected to be in attendance to help us wrap up the session.

DHLRI Research in Progress included research seminars from **Sakthivel Sadayappan, PhD** (University of Cincinnati) and **Sarah Lessard, MSc, PhD** (Joslin Diabetes Center), **Mary Armanios, MD** (Johns Hopkins University), **Zoja Selimi** (University of Bern), and **Raghu Mirmira, MD, PhD** (University of Chicago), a DMRC seminar from **Kalyanam Shivkumar, MD, PhD** (UCLA) and **Ira Goldberg, MD** (NYU), and a Discovery Series Seminar from **Joseph Hill, MD, PhD** (UT Southwestern). DHLRI Research in Progress takes place every Friday from 12-1pm in DHLRI 165.

DHLRI hosted a FY22 Executive Committee meeting this month. A digital copy of the FY22 DHLRI Annual Report will be available on the DHLRI website.

DHLRI co-sponsored the OSU Biomedical Engineering Society's Engineering in Healthcare: Industry and Research Symposium. This was a great opportunity for students to network with industry and research leaders in healthcare-related fields, ultimately fostering a stronger collaboration between industry and academia.

DHLRI hosted the second annual **Preventative Health of Adipose Tissue (PHAT Symposium)** on Friday, April 14 in DHLRI. This interdisciplinary regional event focuses on the study of adipose tissue, with the goal of bringing together new research teams and collaborations and stimulating discussions around the future of adipose tissue research across the basic, translational, and clinical spectrum.



PHAT Conference Speakers with organizers Kristen Stanford, PhD and Kristy Townsend, PhD

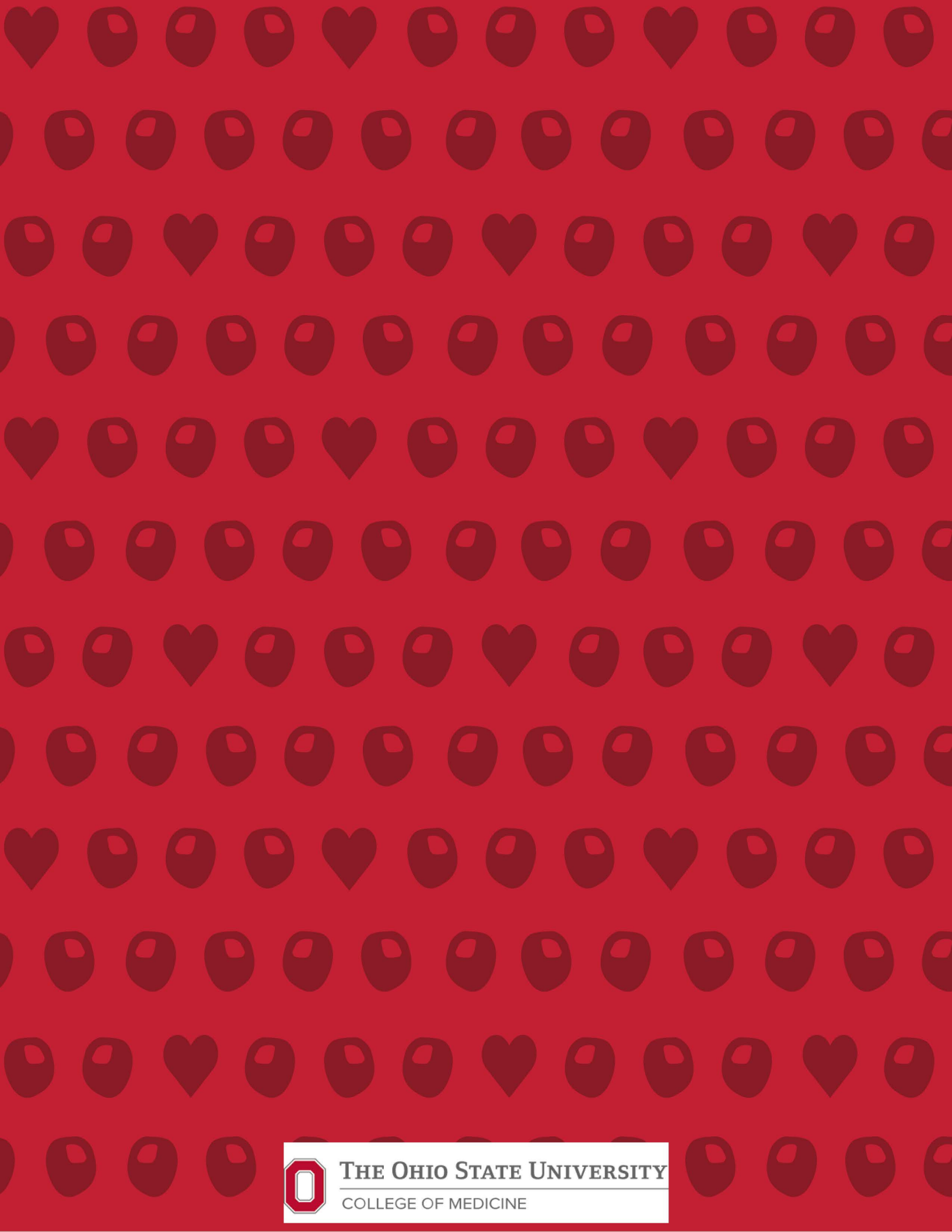
To view the DHLRI FY22 Annual Report, please visit <https://medicine.osu.edu/departments/davis-heart-lung-research-institute/our-people/message-from-the-director>.

Here you can find information on DHLRI publications, funding, programs, and departmental updates, as well as current projects and future goals.

The DHLRI website has also been updated for the quarter, including a new featured story, featured publications, a new events & outreach schedule, and administrative staff updates.

Please reach out to Izabelle (Izabelle.Colvin@osumc.edu) with any submissions for next quarter's newsletter. Photos to accompany your announcement are appreciated.





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