

Department of

# Internal Medicine

Annual Research Report | Calendar Year 2023



# A Message from the Vice Chair, Research

UNMC Department of Internal Medicine



In this publication, you will find a summary of the Annual Research and Sponsored Projects Report for the University of Nebraska Medical Center's Department of Internal Medicine for calendar year 2023.

2023 was an incredibly productive year, with continued success in obtaining extramural research funding as well as continued publication productivity.

Notable in this year's report is the first R01 award to Dr. Sara Bares, Associate Professor in the Division of Infectious Diseases funded by the National Institutes on Aging, "Hormone Therapy for Peri- and Postmenopausal Women with HIV." This multi-principal investigator project with Dr. Michael Yin of Columbia University in New York City will explore how hormonal therapy affects menopause symptoms, leveraging the AIDS Clinical Trials Group.

UNMC is also a key recruiting site for the "All of Us Research Program Heartland Consortium" funded by the NIH Office of the Director. Led by PI Dr. Cyrus Desouza, Professor and Chief of DEM, this multi-PI study of the genetics of human beings will focus on the recruitment of populations of the Great Plains of Kansas, Iowa, Nebraska, and Missouri, adding to the existing patient population recruited in the first phase of this study.

Another key milestone occurred in the Division of Rheumatology with the completion of the COvid-19 VaccinE Response in Rheumatology Patients (COVER) Study biobank. Investigators, Drs. Ted Mikuls and Geoff Thiele, biobanked more than 1400 samples from 42 nationwide sites from patients following COVID-19 vaccination. It serves as the basis for mechanistic studies of patients with rheumatologic conditions and their vaccine immune responses.

We welcomed 22 students for mentored research this summer through the Summer Undergraduate Research Program (SURP) and the NIAAA-funded T25 Summer Undergraduate Alcohol Research Program (SUARP) (Dr. Kristina Bailey, principal investigator). Finally, on Friday, June 14, 2024, the Department of Internal Medicine Research Awards were celebrated, featuring a presentation and panel discussion on research mentoring with Dr. Stephen Renard, UNMC Science Laureate.

Special thanks to the faculty, house officers, postdoctoral fellows, students, and staff of the Department of Internal Medicine who perform and support the research mission of the department. We would also like to thank our divisional representatives serving on the Internal Medicine Research Council (IMRC) for their continued research advocacy.

We look forward to new growth and continued diversification of our research and other sponsored activities in 2024.

A handwritten signature in blue ink that reads "Roslyn B Mannon, MD". The signature is written in a cursive, flowing style.

Roslyn B Mannon, MD  
Professor of Medicine  
Vice Chair of Research  
Division of Nephrology, Associate Chief, Research  
Department of Internal Medicine

# Research Leadership



**Roslyn B. Mannon, MD**  
Professor of Medicine  
Vice Chair of Research  
Associate Chief of  
Research



**Matthew Lunning, DO, FACP**  
Associate Professor, Division of  
Oncology & Hematology  
Associate Vice Chair of Research  
Assistant Vice Chancellor of Clinical  
Research



**Lisa Chudomelka, MA**  
Associate Vice Chair,  
Research Administration

## Internal Medicine Research Administration & Development (IMRAD) Team



**Toni Goeser**  
Research Program  
Associate



**Purnima Guda, PhD**  
Bioinformatics Data  
Manager



**Lisa Bowers, MS**  
Research Accountant



**David Grantham**  
Grants Finance  
Associate

To engage IMRAD's pre- and post-award services, please contact [Lisa Chudomelka](#).

Services can include budget development, communication with Sponsored Programs Administration, application submission, help with Just-in-Time submission, and progress reports, among others.

### Divisions Covered

Cardiovascular Medicine  
Oncology/Hematology  
Rheumatology (backup, if needed)  
Geriatrics (backup, if needed)

### Divisions Covered

Infectious Diseases  
(NIH grant/subaward proposals only)  
Hospital Medicine  
GIM

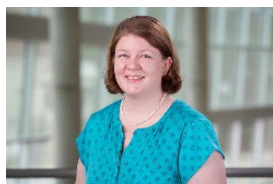


# Internal Medicine Research Council

The IM Research Council (IMRC) consists of individual representation from each of the divisions within the Department of Internal Medicine. The Internal Medicine vice chair for research leads the research council.

The research council administers the following Internal Medicine activities:

- Oversight of the Internal Medicine Annual Research Awards nomination and selection process.
- Investigate mechanisms to increase grant funding aimed at clinical and basic science research within the department.
- Integrate the PhD faculty, residents, and fellows to address issues that are research-oriented.
- Serve as a group to review grants/manuscripts on an ad-hoc basis.
- Review applications to Internal Medicine's Summer Undergraduate Research Program (SURP) and Summer Undergraduate Alcohol Research Program (SUARP).
- Highlight opportunities to apply for grants and awards.



**Amber Brown Keebler, MD**  
General Internal Medicine



**Said Chaaban, MD**  
Pulmonary, Critical Care  
& Sleep Medicine



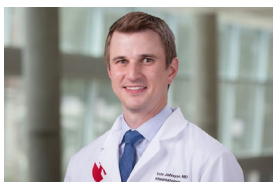
**Nicolas Cortes-Penfield, MD**  
Infectious Diseases



**Frederick Hamel, PhD**  
Diabetes, Endocrinology  
& Metabolism, VA



**Jacques Izard, PhD**  
Gastroenterology &  
Hepatology



**Tate Johnson, MD**  
Rheumatology



**Thuy Koll, MD**  
Geriatrics, Gerontology &  
Palliative Medicine



**Anupam Kotwal, MD**  
Diabetes, Endocrinology  
& Metabolism



**Scott Lundgren, DO, MS**  
Cardiovascular Medicine



**Angie Peppers, MBA**  
Vice Chair, Finance



**Faruq Pradhan, MBChB**  
Gastroenterology & Hepatology



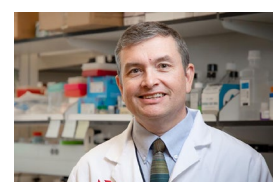
**Jason Shiffermiller, MD**  
Hospital Medicine



**Prasanth Ravipati, MD**  
Nephrology



**Jana Wardian, PhD, MSW**  
Hospital Medicine

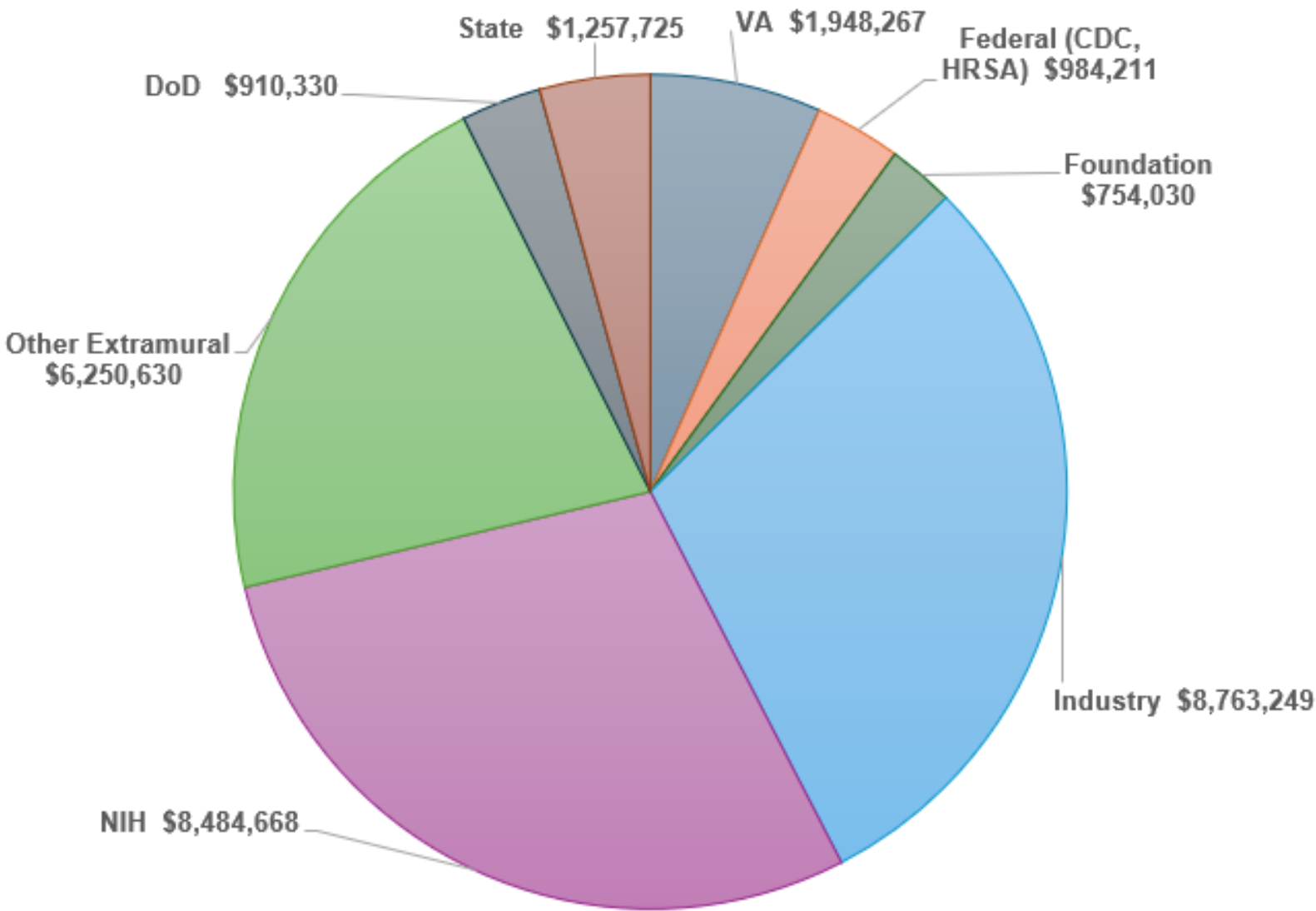


**Todd Wyatt, PhD**  
Pulmonary, Critical Care &  
Sleep Medicine, ACORN

The IMRC meets each month to discuss ways to increase and improve research activity within the Department of Internal Medicine.

# 2023 Internal Medicine Sponsored Awards

The Department continues to diversify its grants and contracts portfolio, with sponsored awards that encompass a wide range of federal, state, and private foundation resources. Total overall 2023 funding (\$29,353,110) was about 1.4% less than 2022; however, notable increases in NIH, DoD, and federal subcontracts were realized.



# 2023 Publications of the Quarter

Each quarter, IM department leadership selects a "Publication of the Quarter." The final selection is based on criteria including impact factor of the journal. IM publications recognized during 2023 include:

## Quarter One

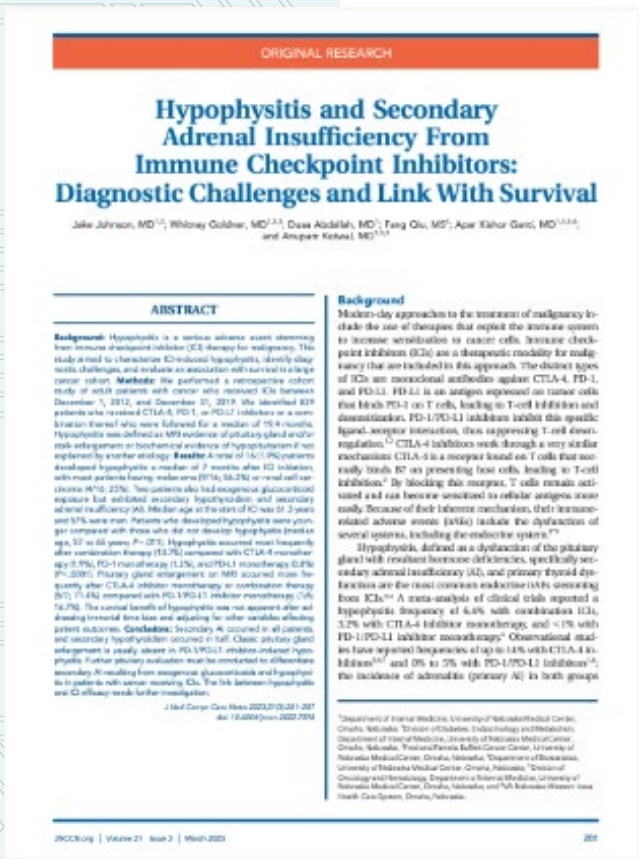
Johnson J, Goldner W, Abdallah D, Qiu F, Ganti AK, Kotwal A. Hypophysitis and Secondary Adrenal Insufficiency From Immune Checkpoint Inhibitors: Diagnostic Challenges and Link With Survival. *J Natl Compr Canc Netw*. 2023 Feb 24;21(3):281-287. doi: 10.6004/jnccn.2022.7098. PMID: 36828029.

### Honorable Mention:

England BR, Yang Y, Roul P, Haas C, Najjar L, Sayles H, Yu F, Sauer BC, Baker JF, Xie F, Michaud K, Curtis JR, Mikuls TR. Identification of Multimorbidity Patterns in Rheumatoid Arthritis Through Machine Learning. *Arthritis Care Res (Hoboken)*. 2023 Feb;75(2):220-230. doi: 10.1002/acr.24956. Epub 2022 Oct 19. PMID: 35588095; PMCID: PMC10009900.

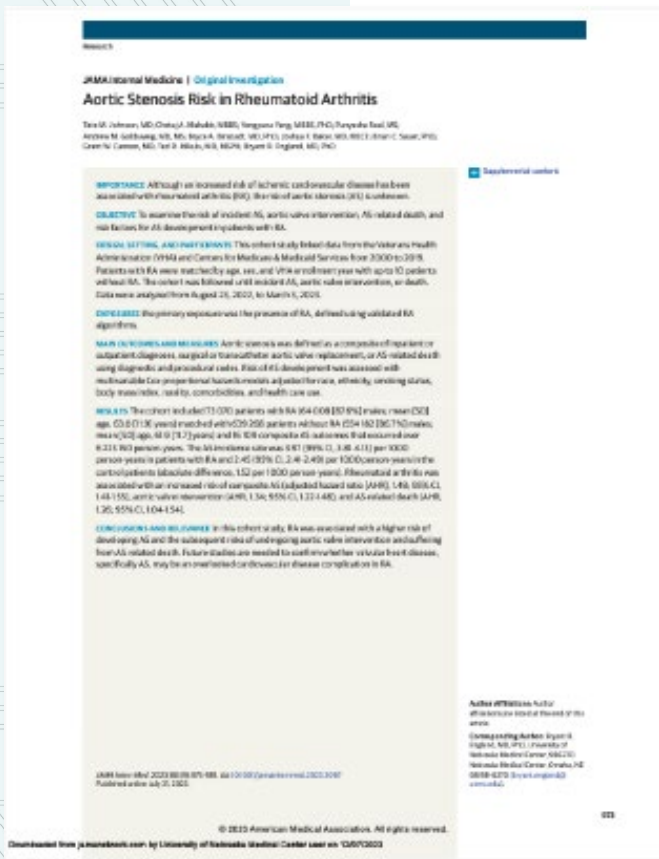
## Quarter Two

El-Kersh K, Zhao C, Elliott G, Farber HW, Gomberg-Maitland M, Selej M, Garcia-Ferrer J, Benza R. Derivation of a Risk Score (REVEAL-ECHO) Based on Echocardiographic Parameters of Patients With Pulmonary Arterial Hypertension. *Chest*. 2023 May;163(5):1232-1244. doi: 10.1016/j.chest.2022.12.045. Epub 2023 Jan 9. PMID: 36634897; PMCID: PMC10268808.



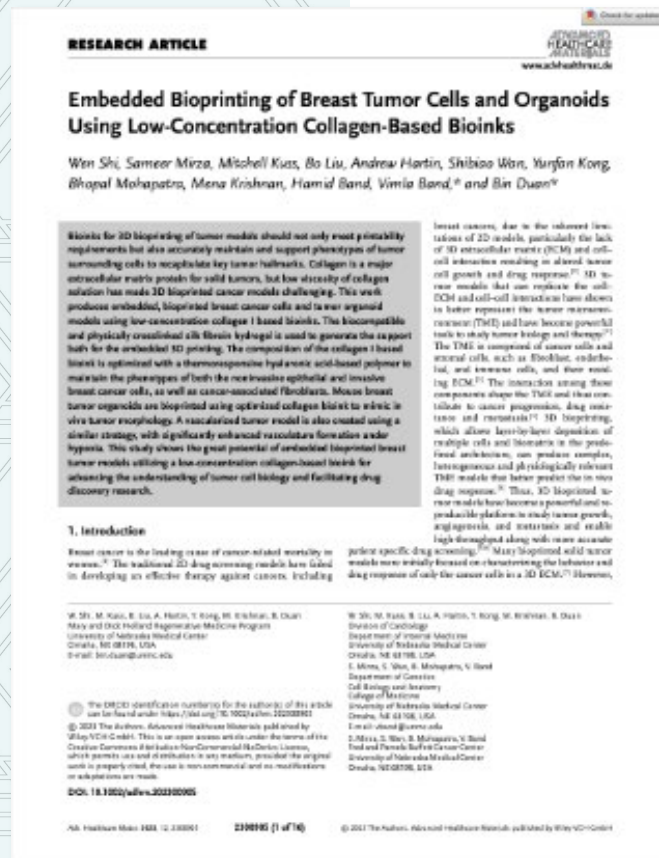


# 2023 Publications of the Quarter



**Quarter Three**  
**Jonnson TR, Mahabir CA, Yang Y, Goldswieg AM, Binstadt BA, Baker JF, Sauer BC, Cannon GW, Mikuls TR, England BR. Aortic Stenosis Risk in Rheumatoid Arthritis. JAMA Intern Med. 2023 Jul 31;183(9):973–81. doi: 10.1001/jamainternmed.2023.3087. Epub ahead of print. PMID: 37523173; PMCID: PMC10391353.**

**Honorable mention:**  
Stuver R, Horwitz SM, Advani RH, Vose JM, Lee HJ, Mehta-Shah N, Zain JM, Haverkos B, Lechowicz MJ, Moskowitz AJ, Pham LQ, Leyden E, Ansell SM, **Lunning MA**. Final results of a phase II study of CHOEP plus lenalidomide as initial therapy for patients with stage II-IV peripheral T-cell lymphoma. *Br J Haematol.* 2023 Aug;202(3):525-529. doi: 10.1111/bjh.18885. Epub 2023 May 22. PMID: 37217196.

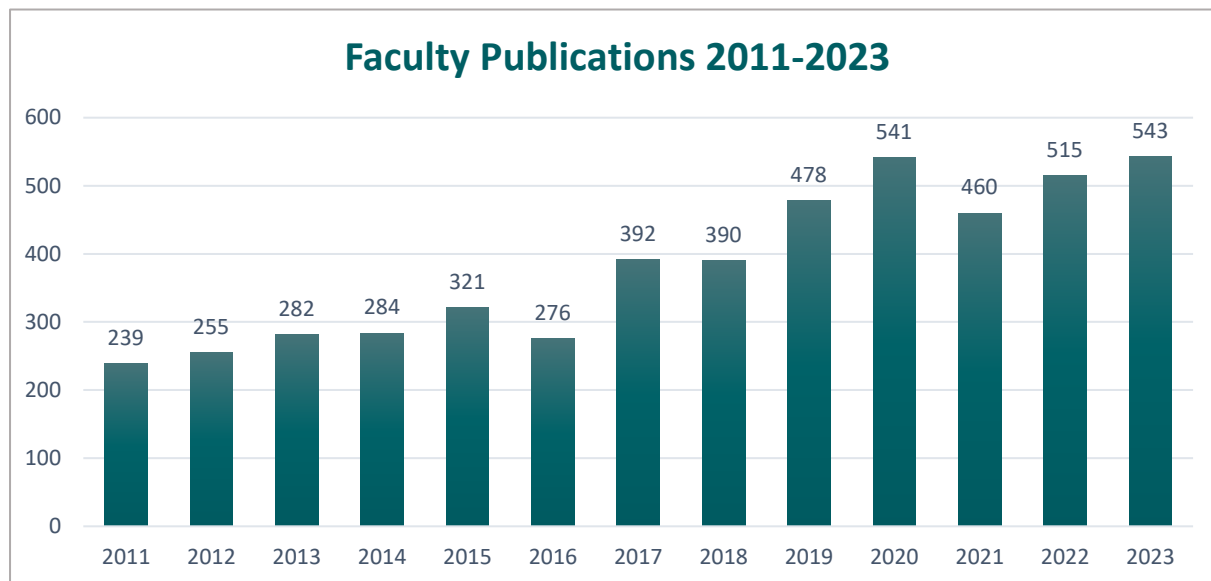


**Quarter Four**  
**Shi W, Mirza S, Kuss M, Liu B, Hartin A, Wan S, Kong Y, Mohapatra B, Krishnan M, Band H, Band V, Duan B. Embedded Bioprinting of Breast Tumor Cells and Organoids Using Low-Concentration Collagen-Based Bioinks. Adv Healthc Mater. 2023 Oct;12(26):e2300905. doi: 10.1002/adhm.202300905. Epub 2023 Jul 14. PMID: 37422447; PMCID: PMC10592394.**

**Honorable mention:**  
**Wiedel NA**, Sayles H, Larson J, Wardian JL, Hewlett A, McClay J, Ge J, Anzalone AJ; N3C consortium. Associations between COVID-19 therapies and inpatient gastrointestinal bleeding: A multisite retrospective study. *J Med Virol.* 2023 Oct;95(10):e29100. doi: 10.1002/jmv.29100. PMID: 37786247.

# 2023 Internal Medicine Faculty Publications

Peer-reviewed manuscripts published in our multiple specialties have been on the rise in our department since the peak in 2020, which was associated with the phenomena of COVID publication productivity observed nationally. These include first author and senior author as well as co-authored manuscripts.



# 2023 Internal Medicine Inventions

Two new patent submissions came from collaborative investigations within the Division of Infectious Diseases (Dr. Ashraf) and the Division of Rheumatology (Dr. Mikuls).

REF#	Disclosure Date	Title	Inventors - *indicates Internal Medicine Dept	Status
24015	10/4/2023	Self-led Infection Control Evaluation (SLICE) Tool	Lauren Musil, Angela Vasa, Muhammad Salman Ashraf*, Laura Tyner, Jody Scebold, Aretha Boex, Alisha Sheffield	Market/Protect
24032	11/8/2023	Proteomic and serology markers in pre-rheumatoid arthritis disease stage predict onset of RA	Ted Mikuls*, Myra Imanaka, Samir Rachid Zamim, Mark Gillespie, Xiaojun Li, Kevin Deane, Michael Holers, Jess Edison	Co-owned; UNMC not taking lead



# 2023 Awards & Recognitions

## UNMC Vice Chancellor of Research Awards 2023



**Carol Casey, PhD**  
Research Leadership

The Research Leadership Award honors scientists previously recognized as Distinguished Scientists who have a longstanding research funding history and also serve as research leaders and mentors on campus.



**Nicole Shonka, MD**  
New Investigator

The New Investigator Award honors outstanding UNMC scientists who, in the past two years, have secured their first funding from the NIH, the DoD, or other national sources and have also demonstrated scholarly activity, such as publishing their research and/or presenting at national conventions.

## Department of Internal Medicine Faculty Research Awards

On Friday, June 14, 2024, the department recognized select faculty and trainees for their specific research accomplishments at the Annual Internal Medicine Research Awards during Grand Rounds:

**Jill Poole, MD** (pictured)  
Faculty Career Excellence Research Award

**Daniel Villageliu, PhD**  
Post-Doctoral Research Award

**Bryant England, MD, PhD**  
Faculty Research Mentoring Award

**Austin Wheeler, MD**  
Fellowship Research Award

**John Dickinson, MD, PhD**  
Faculty Basic Science Research Award

**Jonathan Trinh, MD**  
Resident Research Award

**Nicolas Cortes-Penfield, MD**  
Faculty Clinical Research Award

**Olivia Paetz**  
Medical Student Research Award

**Thuy Koll, MD**  
Faculty Clinical Research Award

**Carlos Hunter**  
Daughton Research Award



# 2023 Awards & Recognitions

## Department of Internal Medicine Scientist Development Award



The goal of this award is to support an early career IM faculty member in a focused research project and research training that will allow them to be competitive for the next level of career development awards (e.g., NIH K Award, VA Career Development Award, or equivalent foundation award).

### **Bo Liu, PhD**

Project: Multifunctional zwitterionic hydrogels loading S100A9 inhibitor for postoperative abdominal adhesion prevention

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## SURP/SUARP

In 2023, Department of Internal Medicine researchers welcomed 22 students into their labs and offices for the Summer Undergraduate Research and Summer Undergraduate Alcohol Research Programs (SURP and SUARP). Thank you to all Internal Medicine faculty members and staff who help make this program a success each year and to the Great Plains IDeA-CTR for sponsoring two of our students!



# Allergy and Immunology

## Division Research Highlights



11

Publications in 2023



\$1,368,921

Funding total in 2023



Dr. Jill Poole (center) with EMET medical student Grace Moravec (left) and MD-PhD Student Aaron Schwab (right) at the American Academy of Allergy, Asthma, and Immunology (AAAAI) meeting in front of their awarded featured poster in the Environmental and Occupational Respiratory Disease (EORD) Interest Section.

Two goals accomplished by the Allergy and Immunology Division were growing research within the division to include new fellows & students and maintaining strong research collaborations across UNMC. Led by division chief Jill A. Poole, MD, researchers in the division had several abstracts accepted and presented at two national meetings, MD-PhD student Aaron Schwab competed for and was awarded an F30 MD/PhD Fellowship Grant by NIEHS, and the division initiated and led four investigator-initiated studies and three clinical industry studies in addition to three ongoing federal grants.



# Cardiovascular Medicine

## Division Research Highlights



71

Publications in 2023



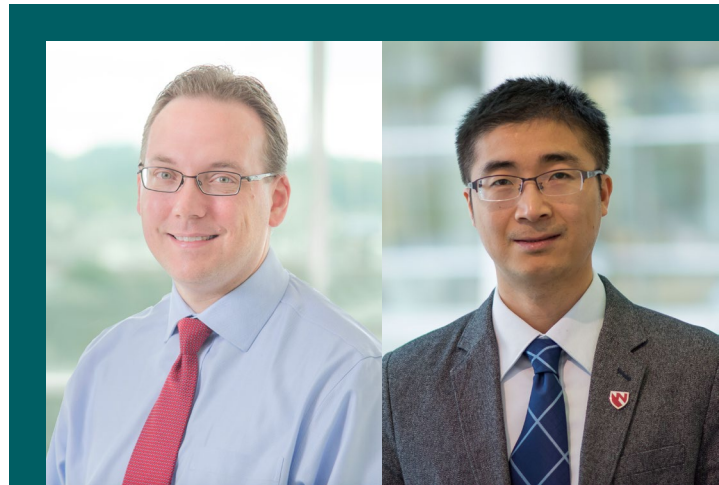
\$2,949,891

Funding total in 2023

Dr. Douglas Stoller became primary investigator of the Genetic Insights Trial with plans to enroll 100,000 Nebraska Medicine/UNMC patients for targeted genetic diseases and counseling.

Dr. Bin Duan and colleagues embarked on an NHLBI-funded project to develop an innovative strategy to develop new methods of reversing chronic heart failure-associated cardiac arrhythmia and regulating cardiac remodeling. Dr. Duan is also PI on an NINDS project that will develop a novel dual network nerve adhesive with high adhesive strength and optoelectronic properties to replace the suturing process and improve long-gap peripheral nerve regeneration in a rat model.

Investigators within the division initiated several industry-funded research projects that study interventions for atrial fibrillation, non-obstructive hypertrophic cardiomyopathy, heart failure, pulmonary arterial hypertension, and left heart disease, respectively.



Dr. Doug Stoller (left), PI of UNMC's Genetic Insights trial, plans to enroll 100,000 participants in the study. Dr. Bin Duan (right) is PI on a project to develop an adhesive to replace the suturing process and improve long-gap peripheral nerve regeneration in a rat model, among other projects.



# Diabetes, Endocrinology, & Metabolism

## Division Research Highlights



**30**

Publications in 2023



**\$2,809,004**

Funding total in 2023



From left to right: Dr. Rusty McCulloh with Dr. Cyrus Desouza, UNMC's All of Us MPI, and Aubrey VanStory, UNMC's All of Us Quality Assurance and Site Program Manager, at a University of Kansas All of Us Heartland Consortium event.

Dr. Cyrus Desouza, professor and chief of DEM, leads the UNMC recruitment site for the NIH precision medicine research program, *All of Us*. *All of Us* is a large multicenter project funded by the NIH Center Director's office and is in its second phase. Its intent is to accelerate research and precision medicine by promoting diversity, transparency, and accessibility. The focus of the UNMC site is Great Plains recruitment.

Another research highlight is Dr. Andjela Drincic's DexCom-funded project studying the effect of continuous insulin infusion with continuous glucose monitoring instead of point-of-care glucose. If successful, this will greatly reduce the burden of care for nursing staff.

# Gastroenterology and Hepatology

## Division Research Highlights



**58**

Publications in 2023

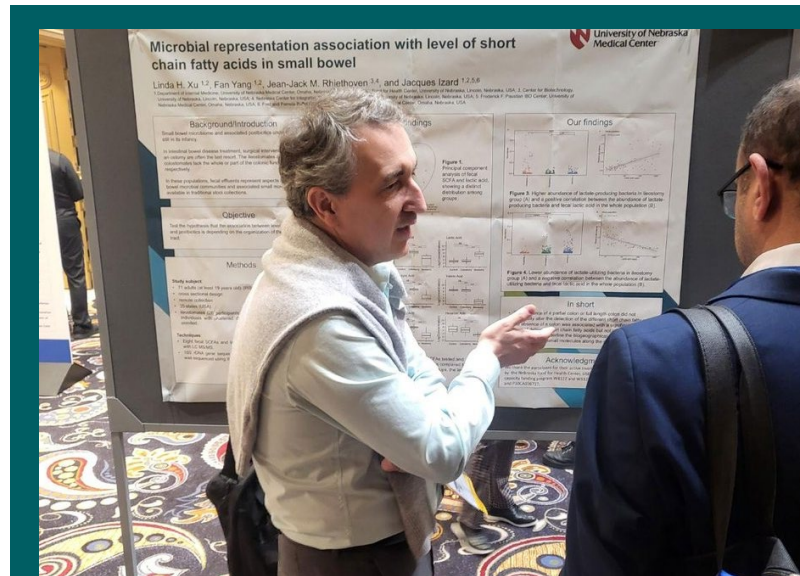


**\$4,110,292**

Funding total in 2023

The Division of Gastroenterology and Hepatology has exciting things happening in clinical research. Under the direction of Dr. Peter Mannon, his team has begun enrolling subjects in a gut microbiome study that tests the ability of Arabinoxylan as a prebiotic in IBD patients and healthy controls.

Researchers in the division also have successfully completed an Eosinophilic Esophagitis placebo-controlled study and are now taking part in an open-label extension study, which will allow subjects to have access to the drug for up to five years.



Dr. Jacques Izard discusses gut health, microbiome, and postbiotics at the Crohn's & Colitis Congress.

# General Internal Medicine

## Division Research Highlights



**19**

Publications in 2023



**\$209,032**

Funding total in 2023



One of Dr. Andy Vasey's studies seeks to understand the impact of Immulina on the levels of inflammatory biomarkers in patients with PASC.

Dr. Andy J. Vasey, associate professor of general internal medicine, continues his research efforts examining post-acute sequelae of COVID (PASC). Dr. Vasey is the PI on two related COVID grants. The NIH Recover study seeks to characterize the incidence and prevalence of these sequelae, characterize the observed symptoms and define the biological mechanisms of the pathogenesis of PASC. Concurrently, the second study seeks to understand the impact of Immulina, a commercially available dietary supplement, on the levels of blood inflammatory biomarkers associated with improvement in fatigue, neurocognitive dysfunction and/or dyspnea in adult patients with PASC.



# Geriatrics & Palliative Care

## Division Research Highlights



9

Publications in 2023

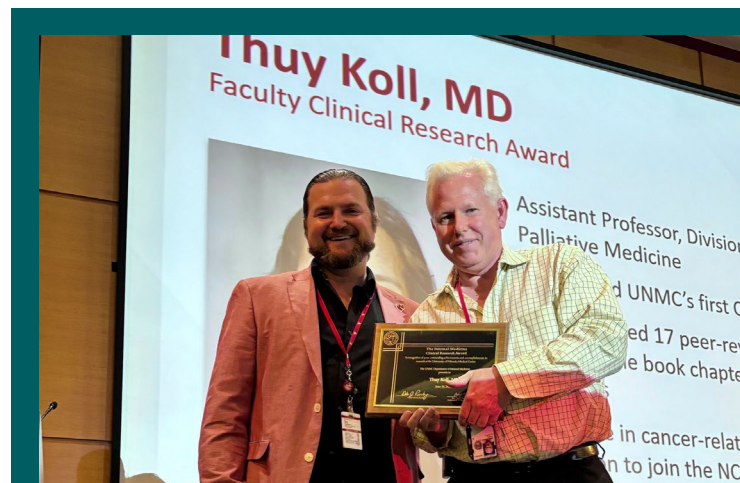


\$1,148,390

Funding total in 2023

Dr. Nora Kovar, assistant professor of geriatrics and palliative care, received a Geriatric Academic Career Award from the Health Resources and Services Administration (HRSA). With the award, Dr. Kovar will develop and evaluate medical student training in cultural competency in Geriatrics. She will also evaluate the impact of Geriatrics training for providers at the OneWorld clinic.

Meghna Chinchankar, a graduate student in the lab of professor and division chief Dr. Alfred Fisher, successfully defended her thesis and received a PhD in Integrated Biomedical Sciences from University of Texas Health Sciences Center at San Antonio in the Biology of Aging discipline. She published her thesis work in [Biochimica et Biophysica Acta - Gene Regulatory Mechanisms](#).



Dr. Alfred Fisher (right) accepts the IM Faculty Clinical Research Award from Dr. Matt Lunning (left) on behalf of Dr. Thuy Koll, who was unable to attend the awards ceremony.



# Hospital Medicine

## Division Research Highlights



# 17

## Publications in 2023



The Hospital Medicine team at the SHM annual meeting. Left to right: Jana Wardian, Jennifer Colella, Allison Ashford, Liz Miles, Tabatha Matthias, Noah Wiedel, Srinivas Vunnam, Harish Pulluru

Faculty members in Hospital Medicine continued their ongoing partnership with DEM, collaborating on four projects. Three papers were generated from this collaboration. The Hospital Medicine team presented their work on co-management with vascular providers at the 2023 Society of Hospital Medicine annual meeting. Additionally, 62 presentations were given in 2023.

# Infectious Diseases

## Division Research Highlights



**100**

Publications in 2023



**\$4,209,097**

Funding total in 2023

Associate Professor Dr. Sara Bares received her first NIH funding – as co-PI of an R01, *Hormone Therapy for Peri- and Post-menopausal Women with HIV (HoT)*. This award with colleagues at Columbia University uses the infrastructure of the AIDS Clinical Trials Group to examine whether hormone therapy can effectively treat symptoms and minimize key aging-related comorbidities of menopause in those with HIV.

Dr. Susan Swindells received the 2023 Infectious Diseases Society of America (IDSA) Alexander Fleming Award.

Notably, leadership for the immunocompromised host clinical research group transitioned to Dr. Anum Abbas, assistant professor, and Dr. Carlos Gomez, associate professor, and the entire group moved into ID division office space on the 4<sup>th</sup> floor of University Tower.



Drs. Anum Abbas and Carlos Gomez assumed leadership of the immunocompromised host clinical research group and moved into office space in University Tower.

# Nephrology

## Division Research Highlights



18

Publications in 2023



\$592,175

Funding total in 2023



The Nephrology Clinical research team. From left, Drs. Prasanth Ravipati and Roslyn Mannon, Kathleen Tinley, Tanette Welsh, Carol Carney, Kelsey Williams, and Drs. Brian Benes and Scott Westphal.

Dr. Prasanth Ravipati contributed to the Otsuka Phase III study of a novel treatment for IgA Nephropathy.

Dr. Scott Westphal completed a phase 2 *de novo* immunosuppression drug study in kidney transplant patients at UNMC. This unique agent blocks a costimulatory pathway that may be important in preventing rejection while supporting long-term kidney graft outcomes.

Dr. Roslyn Mannon received her VA Merit Award (SEKTR) to study kidney transplant recipients at four VA medical centers and the impact of empagliflozin on kidney and cardiovascular outcomes, with a focus on safety.



# Oncology & Hematology

## Division Research Highlights



121

Publications in 2023



\$7,533,616

Funding total in 2023

Dr. Vijaya Bhatt was awarded NIH funding with his project *Aging trajectories and outcomes of older adults with acute myeloid leukemia*. The study will determine changes in cognition, functional independence, and health-related quality of life in older adults with acute myeloid leukemia following new Venetoclax-based treatment. These data will inform decision-making regarding treatment for older adults.

The division stood up The Cellular Therapy Support Services (CTSS) to assist research teams unfamiliar with immune effector cell therapy trials and the logistics of the process. CTSS assists with study start-up, budget review, regulatory coordination and nursing resources.



Left to right: Drs. Samia Asif, Omar Abughanimeh, Benjamin Teply, Shristi Upadhyay, Kate-Lynn Muir, and Meghana Kesireddy at the annual National Comprehensive Cancer Center Network meeting to learn and present their research findings.



# Pulmonary, Critical Care & Sleep Medicine

## Division Research Highlights



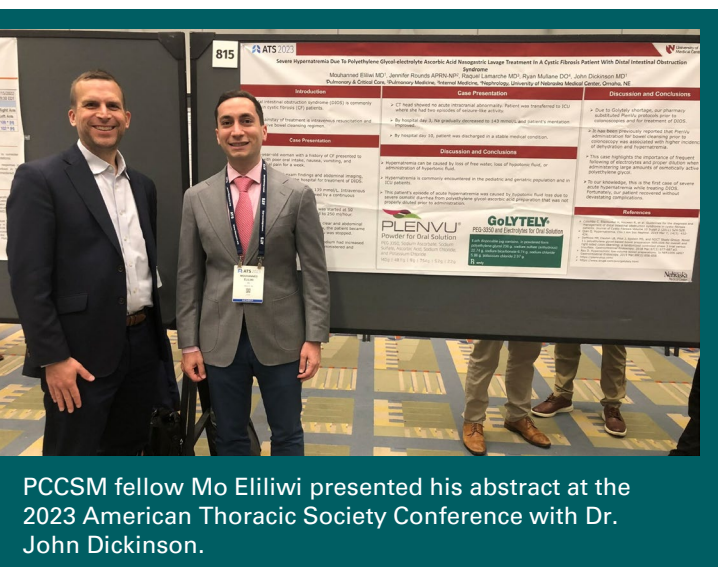
44

Publications in 2023



\$2,518,423

Funding total in 2023



PCCSM fellow Mo Eliiliwi presented his abstract at the 2023 American Thoracic Society Conference with Dr. John Dickinson.

Dr. Derrick Samuelson and Dr. John Dickinson launched a committee promoting fellows' research. Initially, the committee hopes to encourage Pulmonary/Critical Care fellows' involvement in research projects and eventually strengthen the research tract with an NIH T32. One long-term goal is to increase the number of fellows who choose an academic career.

Dr. Kristina Bailey was awarded a VA Merit Review to examine how lungs change as people age and how these changes impact susceptibility to lung cancer. Dr. Daniel Villageliu, a post-doctoral fellow in Dr. Samuelson's lab, was awarded an F32 to study the mechanisms of alcohol use disorder that drives alcohol-driven tissue injury.

Division Chair Dr. Ruxana Sadikot secured funding from a VA Merit Award for a COPD pulmonary hypertension study. Additionally, Drs. Stephen Rennard and Derek Kruse earned an award from the Nebraska Center for Women's Health.

# Rheumatology & Immunology

## Division Research Highlights



**45**

Publications in 2023



**\$1,904,269**

Funding total in 2023

Rheumatology remains a national leader in rheumatology registries and biobanks including completion of enrollment for the COVER study biobank. This \$1.2 million project collected more than 1400 samples from 42 sites nationwide. Likewise, the division continued to expand the Veterans Affairs Rheumatoid Arthritis Registry (VARA) and convened the 19<sup>th</sup> Annual VARA meeting.

Dr. Austin Wheeler earned the American College of Rheumatology's Marshal Schiff Award as the top rheumatology fellow in the country.

Dr. James O'Dell serves as the editor-in-chief for Rheumatology UpToDate and, along with Dr. Ted Mikuls, edited the top rheumatology textbook, *Firestein & Kelley's Textbook of Rheumatology*.



Drs. Bryant England (left) and Ted Mikuls (right) accept the IM Fellowship Research Award from Dr. Lunning (center) on behalf of Dr. Austin Wheeler, who was unable to attend the ceremony.