

DEPARTMENT OF

Internal Medicine

Annual Research Report | Calendar Year 2024

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 2024.

Our faculty continues to show significant scientific productivity with success in obtaining extramural research funding, leadership in industry-funded clinical trials, and peer-reviewed publications. We added a new research administrative position and welcomed Dr. Purnima Guda to facilitate research using electronic health record data.

Notable in this year's report are the innovations in research, including a growing list of inventions such as the Division of Infectious Diseases' *Carecube*, cellular-based therapies in the Division of Hematology-Oncology with CAR-T cells, led by Dr. Matthew Lunning, and Dr. Douglas Stoller's key research leadership role for Genetic Insights.

We welcomed **24** students for mentored research during the summer through the Summer Undergraduate Research Program (SURP) and the NIAAA-funded R25 Summer Undergraduate Alcohol Research Program (SUARP) (Dr. Kristina Bailey, principal investigator). On Friday, June 7, 2024, the Department of Internal Medicine Research Awards were celebrated, featuring a presentation in research mentoring by Dr. Stephen Rennard, Professor of Internal Medicine.

I personally wish to thank our 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 2025.

A handwritten signature in blue ink, reading "Roslyn B. Mannon MD". The signature is fluid and cursive, with the last name "Mannon" being particularly prominent.

Roslyn B Mannon, MD

Professor of Internal 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 of
Research, Office of IM Research
& Development



Toni Goeser

Research Program Associate



Purnima Guda, PhD

Bioinformatics Data Manager



Lisa Bowers, MS

Research Accountant



David Grantham

Grants Finance Associate

IMRAD Award Services

- ✧ Pre-Award Services
 - ✧ Pre-Proposal Stage
 - ✧ Identify and evaluate funding opportunities
 - ✧ Budget development
 - ✧ Editing upon request
 - ✧ Proposal Stage
 - ✧ Compilation of components
 - ✧ Work with SPA
 - ✧ Submit to sponsor
- ✧ Award Stage (JIT)
- ✧ Post-Award – annual progress reports
- ✧ Special Projects

[Request IMRAD Award Services](#)

IMRAD Data Services

- ✧ Feasibility Counts
 - ✧ Clinical Trials
 - ✧ Research Studies
 - ✧ Grant Proposals
- ✧ Research Projects (IRB approved, Ethical access)
 - ✧ The data is released by READI core, which includes minimal charges
 - ✧ De-identified datasets will depend on the number of variables
- ✧ Quality Improvement Projects
- ✧ Health Outcomes Projects

[Request UNMC Data Services](#)

[Request VA Data Services](#)

IM RESEARCH COUNCIL



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



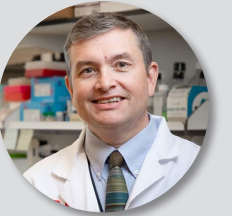
Jason Shiffermiller, MD
Hospital Medicine



Prasanth Ravipati, MD
Nephrology



Jana Wardian, PhD, MSW
Hospital Medicine



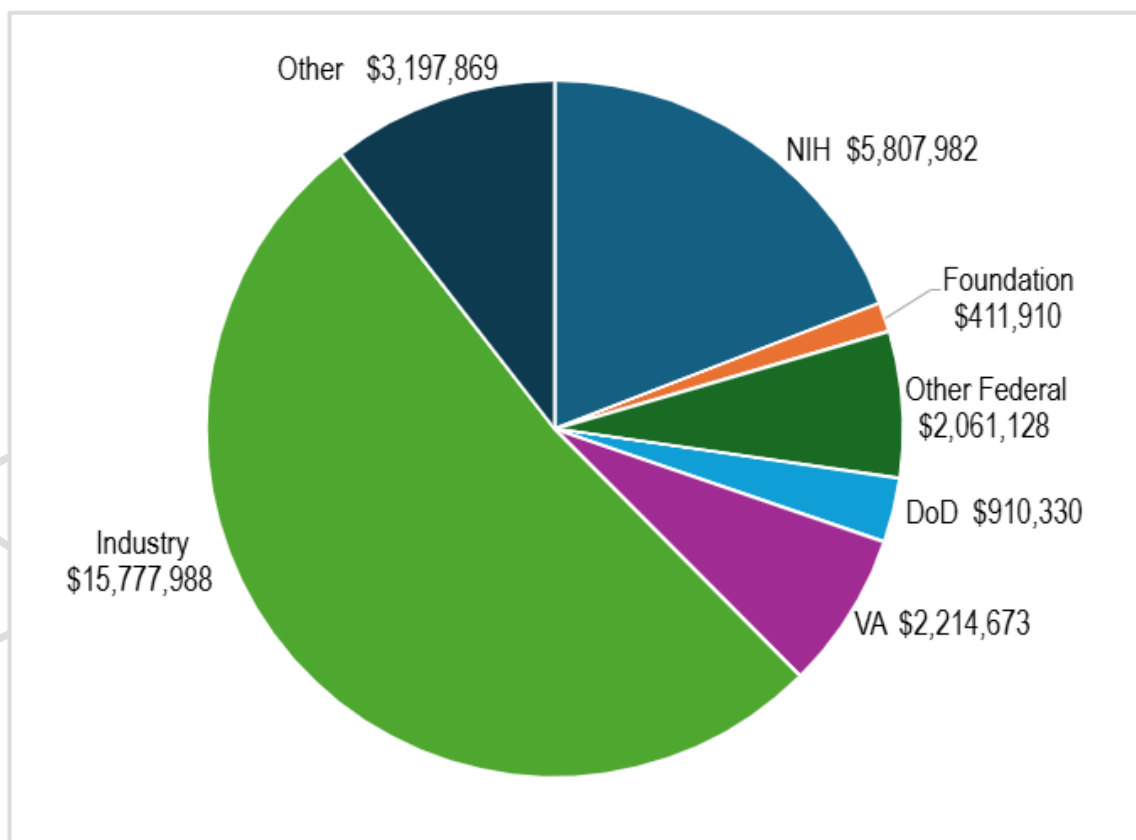
Todd Wyatt, PhD
Pulmonary, Critical Care &
Sleep Medicine, ACORN

The IM Research Council (IMRC) consists of representatives from each of the divisions within the Department of Internal Medicine and is led by the IM Vice Chair for Research. The council administers the following activities within the department:

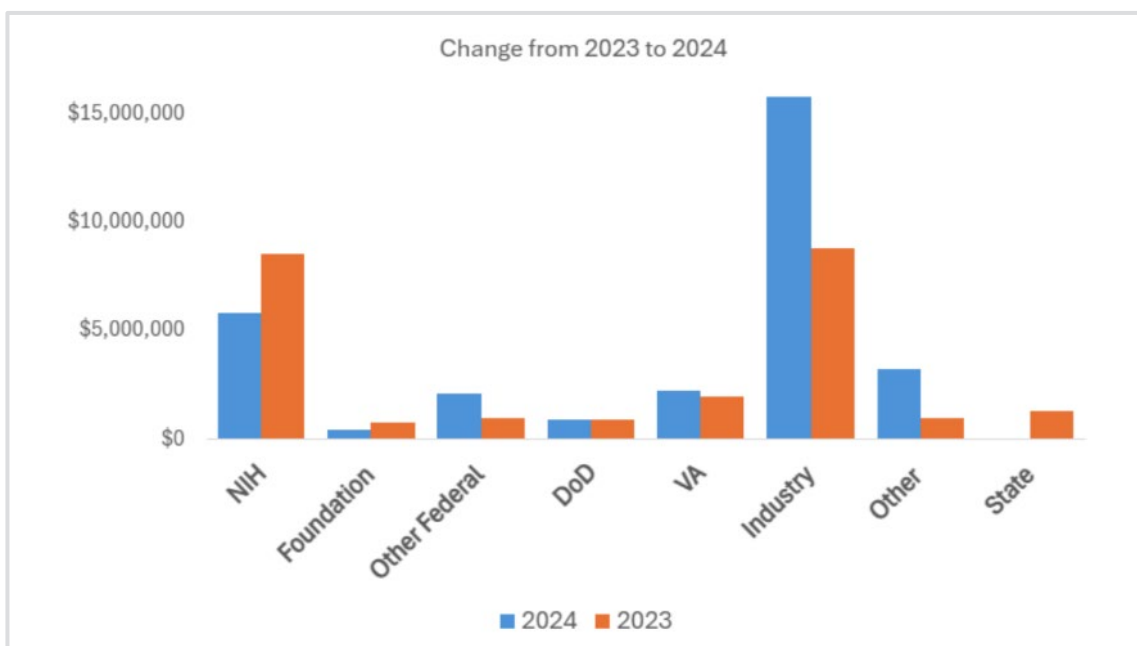
- ✧ Meet monthly to discuss ways to increase and improve research activity within the Department of Internal Medicine.
- ✧ Serve as the point person for research matters within their respective division.
- ✧ Oversight of the Internal Medicine Annual Research Awards nomination and selection process.
- ✧ Selection and oversight of the IM Scientist Development Award (SDA) recipients.
- ✧ Investigate mechanisms to increase grant funding aimed at clinical and basic science research within the department.
- ✧ Approval and guidance for resident research project rotations.
- ✧ 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.
- ✧ Highlight opportunities to apply for grants and awards.

2024 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 2024 funding (\$30,381,880) is 3.5% increase compared to 2023.



Industry-sponsored research nearly doubled from 2023 to 2024, increasing to more than \$15.7 million. The Department experienced a reduction in NIH dollars, however, due in part to the ebb and flow of competitive funding.

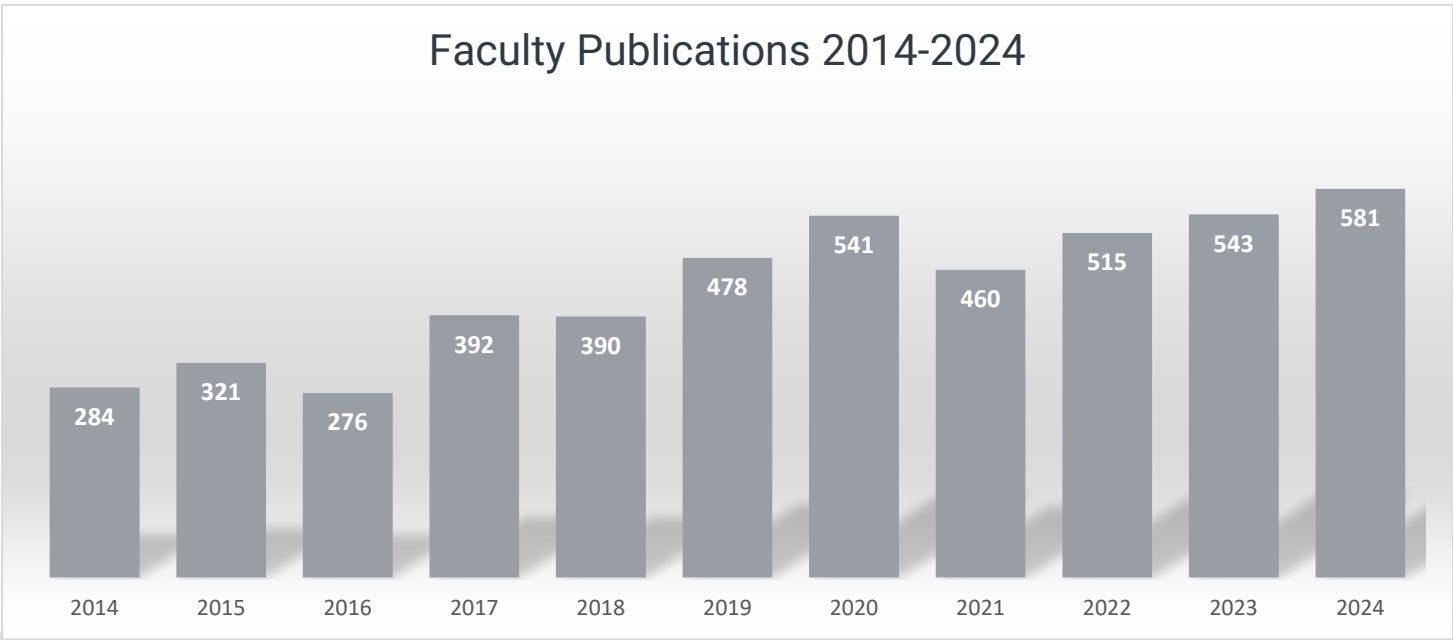


2024 IM INVENTIONS

Invention Title	Inventor Listing
Wireless Endoscopy Training System	Wuttiporn (Shane) Manatsathit
Disruption of Physiologic Protein Modification with Pathologic Modifications: The Substrate of Clinical Disease	Daniel Anderson
The Dominance Dysbiosis Eubiosis Index (DDEU Index)	Jacques Izard, Josh Doolittle

2024 IM FACULTY PUBLICATIONS

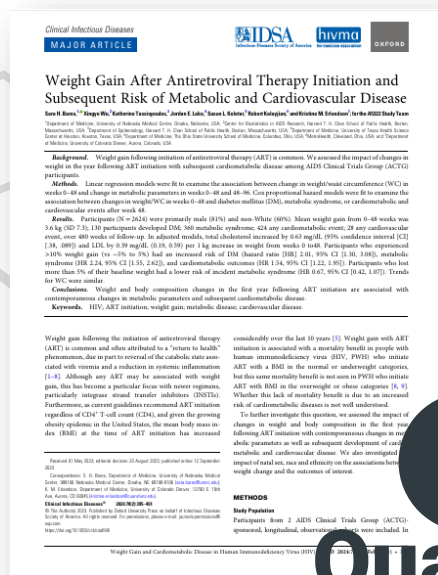
Peer-reviewed manuscripts published in our multiple specialties have continued to grow across all specialties. This figure includes peer reviewed publications only.



More than 100 current and former UNMC researchers have been identified as among the top 2% of all researchers in the world in their fields, according to a Stanford University study that uses standardized citation metrics to rank researchers worldwide. [Check out the full list here](#), which includes many researchers from Internal Medicine!

2024 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 2024 include:



1
Quarter



2
Quarter

Bares SH, Wu X, Tassiopoulos K, Lake JE, Koletar SL, Kalayjian R, Erlandson KM. Weight Gain After Antiretroviral Therapy Initiation and Subsequent Risk of Metabolic and Cardiovascular Disease. Clin Infect Dis. 2024 Feb 17;78(2):395-401. doi: 10.1093/cid/ciad545. PMID: 37698083; PMCID: PMC10874261.

Honorable Mention

Krutsinger DC, Maloney SJ, Courtright KR, Bartels K. Barriers and Facilitators of Surrogates Providing Consent for Critically Ill Patients in Clinical Trials: A Qualitative Study. Chest. 2024 Aug;166(2):304-310. doi: 10.1016/j.chest.2024.02.027. Epub 2024 Feb 20. PMID: 38387647.

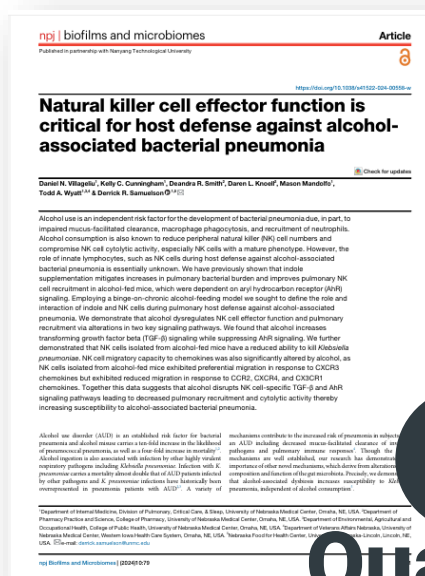
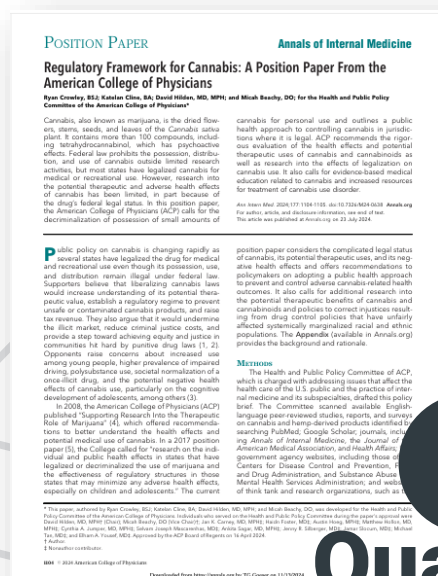
Helget LN, Davis-Karim A, O'Dell JR, Mikuls TR, Newcomb JA, Androsenko M, Brophy MT, England BR, Ferguson R, Pillinger MH, Neogi T, Wu H, Palevsky PM. Efficacy and Safety of Allopurinol and Febuxostat in Patients With Gout and CKD: Subgroup Analysis of the STOP Gout Trial. Am J Kidney Dis. 2024 Nov;84(5):538-545. doi: 10.1053/j.ajkd.2024.04.017. Epub 2024 Jun 19. PMID: 38906504.

Honorable mention:

Kesireddy M, Elsayed L, Shostrom VK, Agarwal P, Asif S, Yellala A, Krishnamurthy J. Overall Survival and Prognostic Factors in Metastatic Triple-Negative Breast Cancer: A National Cancer Database Analysis. Cancers (Basel). 2024 May 8;16(10):1791. doi: 10.3390/cancers16101791. PMID: 38791870; PMCID: PMC11120599.

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Quarter

Quarter

Crowley R, Cline K, Hilden D, **Beachy M**; Health and Public Policy Committee of the American College of Physicians. **Regulatory Framework for Cannabis: A Position Paper From the American College of Physicians.** Ann Intern Med. 2024 Aug;177(8):1104-1105. doi: 10.7326/M24-0638. Epub 2024 Jul 23. PMID: 39038289.

Honorable Mention

Luedders BA, Wheeler AM, Ascherman DP, Baker JF, Duryee MJ, Yang Y, Roul P, Wysham KD, Monach P, Reimold A, Kerr GS, Kunkel G, Cannon GW, Poole JA, Thiele GM, Mikuls TR, England BR. **Plasma Matrix Metalloproteinase Concentrations and Risk of Interstitial Lung Disease in a Prospective Rheumatoid Arthritis Cohort.** Arthritis Rheumatol. 2024 Jul;76(7):1013-1022. doi: 10.1002/art.42812. Epub 2024 Feb 15. PMID: 38268499; PMCID: PMC11213673.

Leuva H, Zhou M, Jamaledine N, Meseha M, Faiena I, Anna Park YH, McWilliams G, Luhrs C, Maxwell KN, Von Hoff D, Bates SE, Fojo T. **Assessing olaparib efficacy in U.S. Veterans with metastatic prostate cancer utilizing a time-indifferent g-rate method ideal for real-world analyses.** EBioMedicine. 2024 Sep;107:105288. doi: 10.1016/j.ebiom.2024.105288. Epub 2024 Aug 23. PMID: 39180789; PMCID: PMC11388178.

Villageliu DN, Cunningham KC, Smith DR, Knoell DL, Mandolfo M, Wyatt TA, Samuelson DR. **Natural killer cell effector function is critical for host defense against alcohol-associated bacterial pneumonia.** NPJ Biofilms Microbiomes. 2024 Sep 3;10(1):79. doi: 10.1038/s41522-024-00558-w. PMID: 39227647; PMCID: PMC11372167.

Honorable mention:

Kalil AC, Chandak A, Moore LSP, Ahuja N, Kolditz M, Casciano R, Kadambi A, Yaghoubi M, Tsiodras S, Malin JJ, Mozaffari E, Bartoletti M. **Public Health Benefits of Applying Evidence-Based Best Practices in Managing Patients Hospitalized for COVID-19.** Clin Infect Dis. 2024 Dec 13;79(Supplement_4):S160-S166. doi: 10.1093/cid/ciae517. PMID: 39449663; PMCID: PMC11638767.

Brooks RT, Luedders B, Wheeler A, Johnson TM, Yang Y, Roul P, Ganti AK, Singh N, Sauer BC, Cannon GW, Baker JF, Mikuls TR, England BR. **The Risk of Lung Cancer in Rheumatoid Arthritis and Rheumatoid Arthritis-Associated Interstitial Lung Disease.** Arthritis Rheumatol. 2024 Dec;76(12):1730-1738. doi: 10.1002/art.42961. Epub 2024 Aug 16. PMID: 39073264; PMCID: PMC11605274.

2024 AWARDS & RECOGNITIONS

UNMC Vice Chancellor of Research Awards 2024



Kaleb Michaud - Research Leadership

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



New Investigators: Sara Bares (left) and Harshraj Leuva (right)

New Investigator Awards go to outstanding UNMC scientists who in the past two years have secured their first funding from the National Institutes of Health, the Department of Defense or other national sources. New Investigators also had to demonstrate scholarly activity, such as publishing their research or presenting their findings at national conventions.

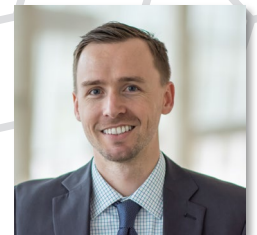


Department of Internal Medicine Research Awards

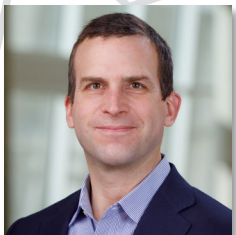
On Friday, June 14, 2024, the department recognized select faculty and trainees for their specific research accomplishments at the Annual Internal Medicine Research Awards during Grand Rounds.



Jill Poole, MD
Faculty Career Excellence
Research Award



Bryant England, MD, PhD
Faculty Research Mentoring
Award



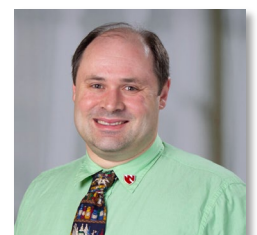
John Dickinson, MD, PhD
Faculty Basic Science
Research Award



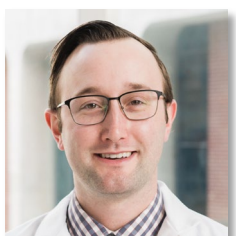
Nicolas Cortes-Penfield, MD
Faculty Clinical Research Award



Thuy Koll, MD
Faculty Clinical Research
Award



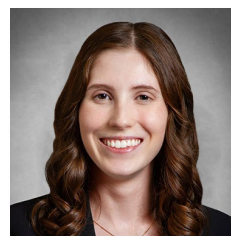
Daniel Villageliu, PhD
Post-Doctoral Research Award



Austin Wheeler, MD
Fellowship Research Award



Jonathan Trinh, MD
Resident Research Award



Olivia Paetz
Medical Student Research
Award



Carlos Hunter
Daughton Research Award

SURP/SUARP



The Department of Internal Medicine welcomed 24 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!

SURP Student Poster Title

Olivia Buchweitz	Tyrphostin (AG-879) Decreases AKT Activation Through NGFR Inhibition in Human Glioblastoma Cells
Ben Caldwell	Targeting the MUC5AC/SLC16A3 Axis to Control Lung Adenocarcinoma Brain Metastasis
Tyler Cumpston	Assessing Medical Residents and Fellows During OSTE: Scores Do Not Differ Between Perceived Gender, Education Level, and Specialty
Sean Dart	Diet and the Gut Microbiome in Chronic Lymphocytic Leukemia: The DIG-CLL Study
Josh Doolittle	DDEU: a novel index for assessing the microbial diversity of the digestive tract in a clinical setting
Mason Feely	Reactive Aldehyde Species (RASP) Inhibitors Sequester MAA-Adducts and Reduce Pro-Inflammatory Cytokines
Stephen Kimminau	Transesophageal Echocardiogram Appropriate Use
Mollie Nielsen	Engineering Microgel system with ROS Scavenging Capability for Acute Lung Injury
Eben Samuel	Analysis of Oral Cefadroxil for Gram-Positive Osteoarticular Infections in Obese Patients
Payton Sindelar	Literature Review of Failure to Rescue: Role of Early Warning System and Rapid Response System
Luke Skrabal	Gut Microbial Extracts from Dilated Cardiomyopathy Mice Impact
Marya Stanikzai	Environmental Assessment of Cleanliness and Contamination with Clostridiodes Difficile on Hospital Units
Htar Tin	How Lessons Learned from the War Can Help Sudan Rebuild its Healthcare System
Ankitha Turangi	ThyroSeq Molecular Testing: Evaluating Diagnostic Performance Among Indeterminate Thyroid Nodules

Mentor(s)

Nicole Shonka
Apar Ganti
Priscila Rodrigues Armijo & Cory Rohlfen
Christopher D'Angelo
Jacques Izard
Ted Mikuls & Geoffrey Thiele
Kaveh Bookani
Bin Duan
Cortés-Penfield
Manish Tiwari
Brian Lowes
Kelly Cawcutt
Nada Fadul
Anupam Kotwal

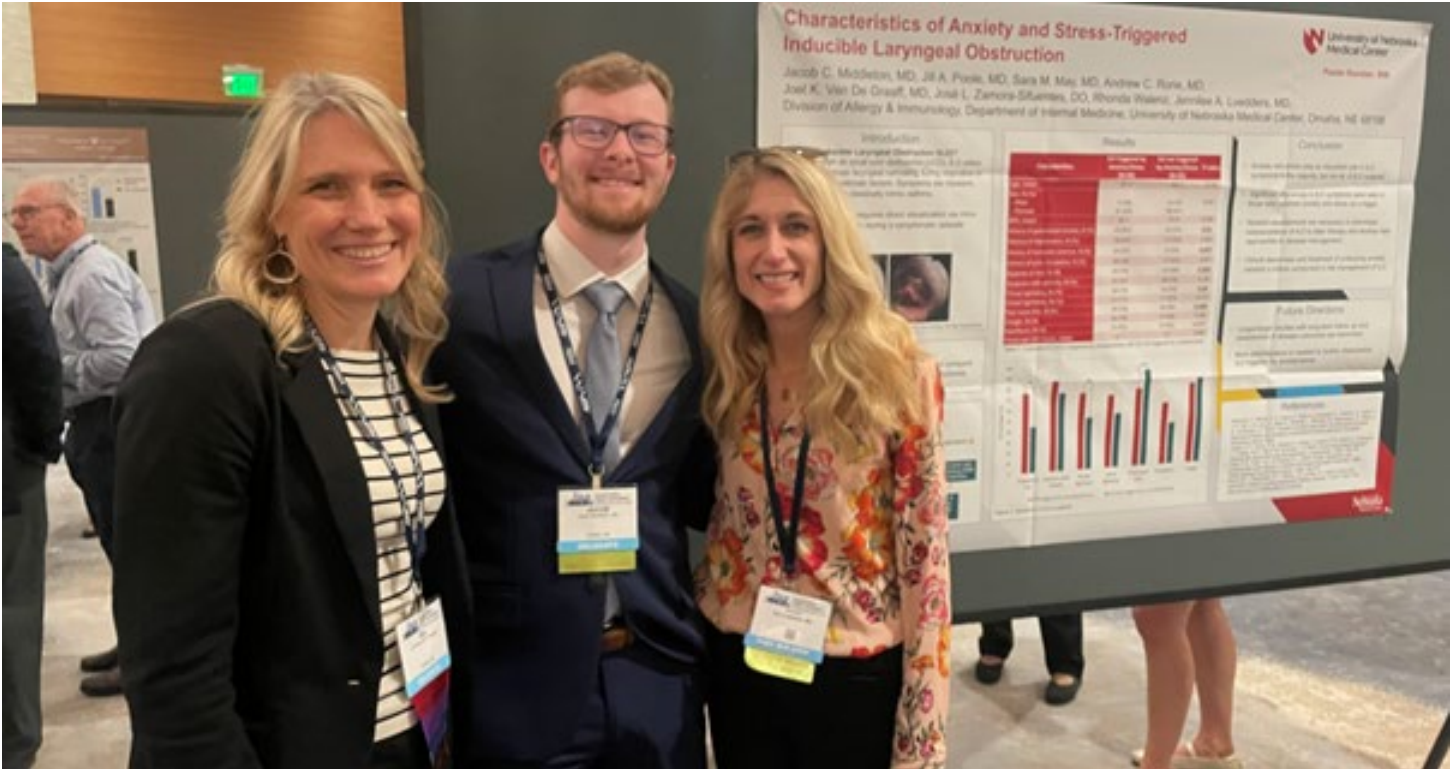
SUARP Student Poster Title

Honorio Magana	Comparison of Uptake and Impact of Different Zinc Formulations in Human Lung Epithelia Exposed to Acetaldehyde
Jovian Bolivar	Mechanism of TFEB Regulation: The Influence of Ser467 Phosphorylation on Nuclear-Cytosolic Dynamics
Gabriel Cruz-Gonzalez	Immunometabolic Effects of Klebsiella pneumoniae and Ethanol on Natural Killer Cells
Jenna Kramer	The Effect of Alcohol on the Ghrelin System
Fatimah Abdulaali	The Effect of Alcohol Administration on Young and Aged Rodents
Suhas Gudar	The Effects of Alcohol Use Disorder Membrane Vesicles on Immune Response
Emily New	Arachidonic Acid Potentiates Ethanol-Induced Steatosis and Mitochondrial Dysfunction in Cardiomyoblasts
Siboney Parra-Chairez	Can Butyrate Reduce Alcohol-induced Change in Lung Cilia and Barrier Function
Melanie Smith	Ethanol Induces Golgi Fragmentation and ER Stress in Prostate Cancer Cells

Mentor(s)

Daren Knoell
Micah Schott
Derrick Samuelson
Karuna Rasineni
Kusum Kharbanda
Derrick Samuelson
Weilun Ai & Saraswathi Visthwanathan
Todd Wyatt
Armen Petrosyan

ALLERGY & IMMUNOLOGY



Drs. Jennilee Luedders (new faculty), Jill Poole (Division Chief), and Jacob Middleton (IM resident) presenting an awarded featured poster at the AAAAI meeting

 **11**
Publications
in 2024

\$1,483,205
 Funding total
in 2024

The Allergy and Immunology division has achieved significant research successes, marked by an increased number of publications and high-impact discoveries. The team has made substantial progress on two federal grants, focusing on novel approaches to reduce environmental lung disease and gaining insights into the cellular mechanisms underlying environmental arthritis-lung disease.

Additionally, the expansion of investigator-initiated research has been instrumental, with publications and abstracts emerging from the new vocal cord dysfunction/inducible laryngeal obstruction registry.

The division's first MD/PhD student (Aaron Schwab) not only earned an NIH fellowship but also successfully defended his dissertation. These efforts have not only advanced scientific understanding but also provided robust support for student, resident, and fellow research, fostering the development of the next generation of scientists in the field.

CARDIOVASCULAR MEDICINE



66

Publications
in 2024

\$1,924,555



Funding total
in 2024

Dr. Bin Duan and Dr. Daniel Anderson received the 2024 American Heart Association (AHA) Collaborative Sciences Award, in collaboration with Dr. Yongfeng Lu at UNL. In this three-year project, the team aims to develop an accurate, cost-effective, and noninvasive approach for diagnosing coronary artery disease (CAD) and predicting its progression using patient plasma-derived small extracellular vesicles (sEVs) and label-free surface-enhanced Raman spectroscopy (SERS) combined with machine learning (ML) analyses.

Dr. Stoller is the primary investigator for the Genetic Insights project at UNMC/Nebraska Medicine. This research project is building a database linking exome sequencing to participants' extracted medical charts, and is part of the national Helix Research Network. The study has enrolled nearly 15k participants, with the national database (currently with ~15 centers, including UNMC) now exceeding 250k participants. Multiple publications are in progress focused primarily on the clinical application of genetic data to improve population health.

DIABETES, ENDOCRINOLOGY & METABOLISM



34

Publications
in 2024

\$4,397,792

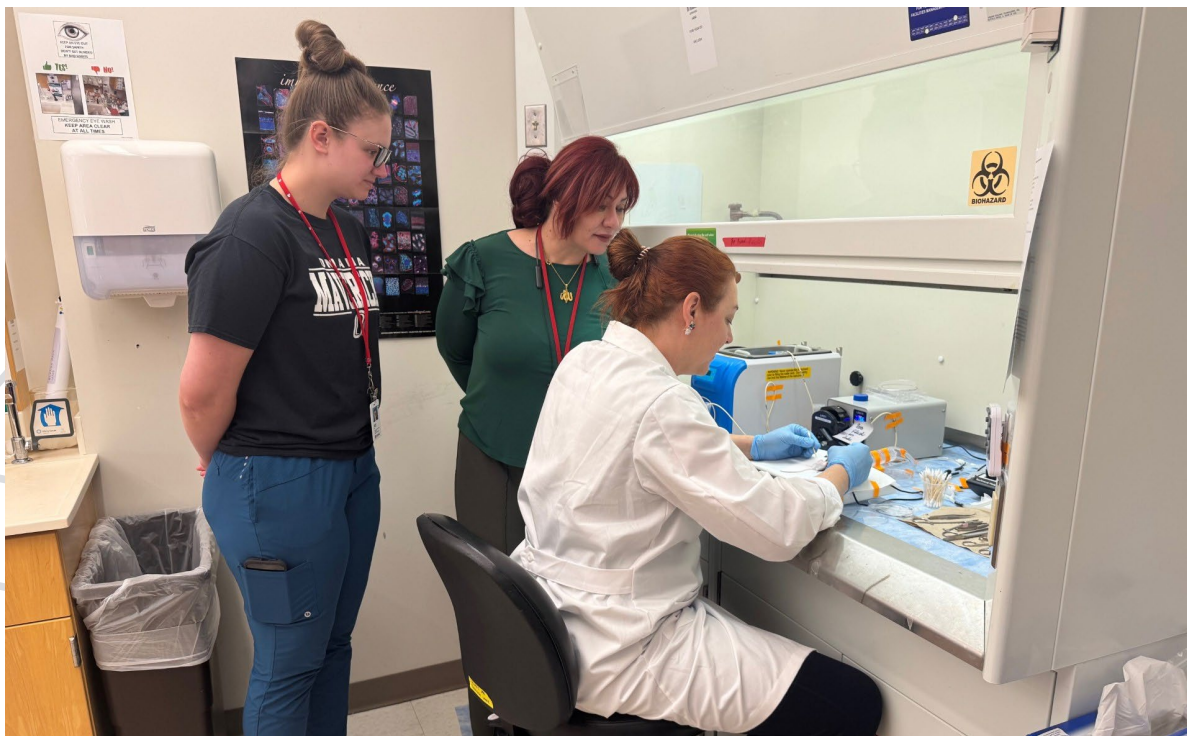


Funding total
in 2024

Dr. Kotwal is the site PI for a Randomized, Double-Blind, Placebo-Controlled, Phase 2b Study to Assess the Efficacy, Safety, and Tolerability of IMVT-1402 as Treatment for Adult Patients With Graves' Disease. IMVT-1402 promotes the removal of harmful autoantibodies by binding to FcRn, leading to IgG degradation, and in its Phase I study was shown to reduce the titers of the culprit TSH-receptor stimulating antibody that is the underlying driver for Graves' disease and its multiple manifestations.

The results of this trial are expected to be significant by demonstrating the efficacy of a treatment that targets the underlying autoimmune pathology of Graves' disease without the untoward consequence of hypothyroidism that occurs from thyroid gland destruction or removal and without the need for long-term antithyroid medications.

GASTROENTEROLOGY & HEPATOLOGY



Megan Ferris and Dr. Rana Al-Sadi look on as Ligia Subitoni Antonio performs a perfusion assay.



61

Publications
in 2024

\$2,196,444



Funding total
in 2024

Dr. Rana Al-Sadi's work in inflammatory bowel disease (IBD) emphasizes that tight junctions in the intestinal epithelium are crucial for maintaining barrier integrity, and their disruption contributes to inflammatory diseases like IBD. Her work shows that inflammation-induced microRNAs impair these junctions, and her group is developing therapies to restore function. Novelly, she uses a closed-loop perfusion system in mice to directly measure intestinal permeability in colitis models to validate the therapeutic impact of restoring gut barrier integrity.

Dr. Anthony Juritsch, a postdoctoral fellow and registered dietitian in Dr. Peter Mannon's lab, investigates how the gut microbiome influences nutritional status in patients with IBD. His research includes patient recruitment for an observational study and experimental work to identify microbial mechanisms that may impair nutrient utilization in IBD, with the long-term goal of developing microbiome-based nutrition interventions.

Similarly, in a multi-phase, transdisciplinary study combining stool metagenomics, tumor microbial data and interrogating the diet of over 250,000 participants, Dr. Jacques Izard and team identified a processed food-centered dietary pattern that is associated with colorectal cancers harboring specific markers, indicating the potential of microbiome-targeted dietary interventions to influence disease risk.

GENERAL INTERNAL MEDICINE



16

Publications
in 2024

\$176,016



Funding total
in 2024

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.

HOSPITAL MEDICINE



26

Publications
in 2024

Hospital Medicine's partnership with Diabetes, Endocrinology & Metabolism (DEM), led by Drs. Jason Shiffermiller and Andjela Drincic, has been highly productive. The teams meet quarterly to discuss the key projects: Perioperative Glucose Management for diabetic patients receiving dexamethasone (Drs. Miles, Shiffermiller, & Drincic), the Insulin Discharge Order Set (Drs. Miles & Polavarapu) with ongoing refinement, evaluation of NPH insulin-based versus basal bolus-based regimens for enteral nutrition-associated hyperglycemia (Dr. Polavarapu), Treat to Stability for kidney transplant recipients (Drs. Luderer, Vlach, & Drincic), and the future Steroid-Induced Hyperglycemia project (Drs. Miles, Shiffermiller, & Drincic). These projects enhance our opportunities to engage with nearly 35 trainees, including medical students, residents, and fellows, and drive the department's research and quality improvement initiatives.

GERIATRICS, GERONTOLOGY & PALLIATIVE CARE



The specialized patient treatment room used for the division's studies on psilocybin. Drs. Lukas and Noble are bringing the exciting new field of psychedelic research to UNMC.

 **6**
Publications
in 2024

\$380,060

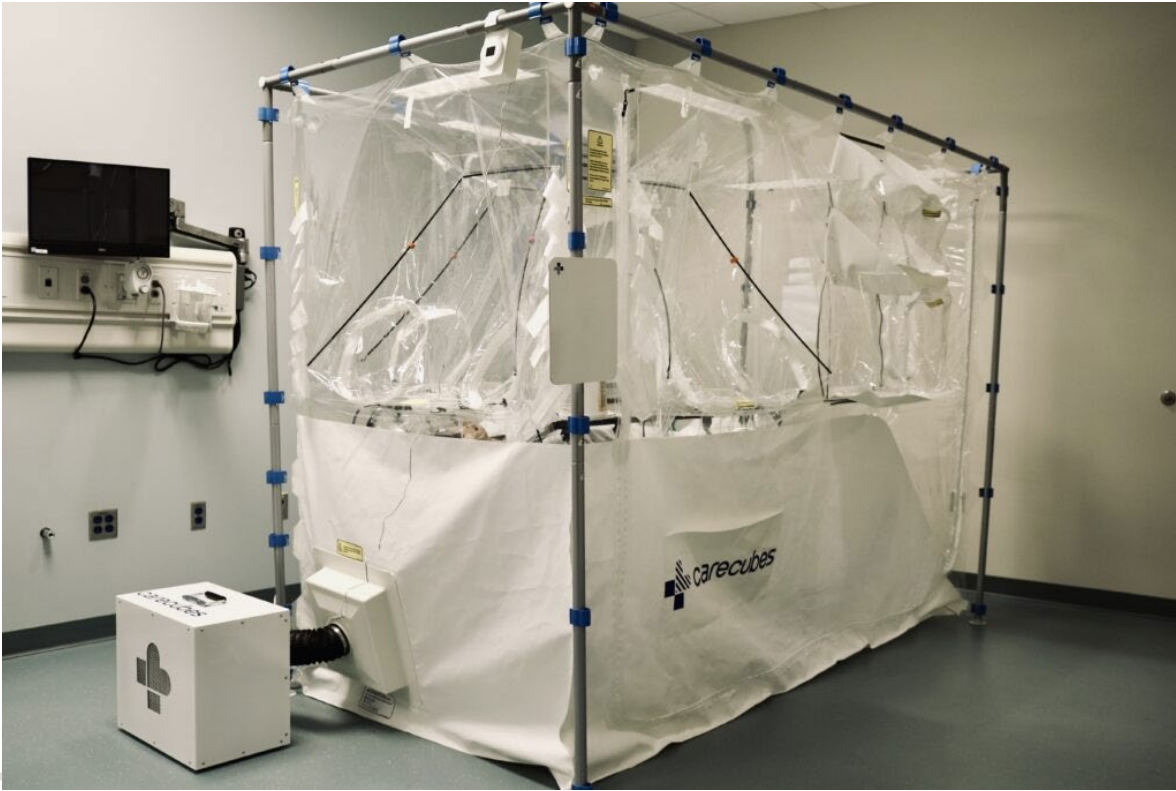
 Funding total
in 2024

Dr. Lou Lukas is leading the first study of a psychedelic substance in our region- a pilot for patients with advanced GI cancer. She is also a site PI for a phase three trial of adults with major depressive disorder, and a co-investigator for a major NIA proposal studying psilocybin for the treatment of chronic pain in older adults.

Dr. Kelsey Noble will serve as site PI for the REKINDLE study, a phase 2 trial evaluating the safety and efficacy of an investigational psilocybin analog for the treatment of adjustment disorder in adult patients with serious medical illness.

The Engage Wellness Center serves as a vital partner in the National Heart, Lung, and Blood Institute-supported clinical trial led by Dr. Windy Alonso in the College of Nursing. Engage Wellness has both a state-of-the-art exercise facility for in-person training and an extensive virtual exercise library (over 500 sessions) that offers flexible options for participant engagement.

INFECTIOUS DISEASES



The Carecube, a system that allows health care workers to provide care while minimizing the potential for exposure to airborne pathogens, was developed by Drs. James Lawler and David Brett-Major.

**105**

Publications
in 2024

\$1,590,728

Funding total
in 2024

Drs. Jonathan Ryder and Trevor Van Schooneveld's study, entitled "Every Crisis is an Opportunity: Advancing Blood Culture Stewardship During a Blood Culture Bottle Shortage," was named as one of the best research papers published by the Infectious Disease Society of America in 2024.

Three current ID faculty (Drs. Andre Kalil, Mark Rupp, and Susan Swindells) were identified as being among the top-cited 2% of researchers in medicine in the world in 2024.

Drs. James Lawler and David Brett-Major received the Startup of the Year award from UNeMed for a company that developed the *Carecube* - a system that allows health care workers to provide care while minimizing the potential for exposure to airborne pathogens.

NEPHROLOGY



From left: Hongjun Wei, Sharon Del Bem Velloso De Moraes PhD, and Farzad Hayati DVM working in the lab of Dr. Roslyn Mannon, MD.



34

Publications
in 2024

\$913,507



Funding total
in 2024

Along with a growing portfolio of Industry-sponsored novel immunosuppression drug studies, the division has several notables. Dr. Eric Langewisch is participating in the landmark NIH-funded ABC study that is investigating the role of immune risk using sophisticated genotype screening of kidney transplant donors and recipients and novel therapy with abatacept to avoid long-term use of calcineurin inhibitors.

Important for future research projects, nephrology developed two key biobanks in kidney disease: one in transplantation associated with allograft biopsies (Dr. Roslyn Mannon), and the second for those with native kidney glomerular disease (Dr. Prasanth Ravipati) – with support from the Dr. Dennis Ross Chair in Nephrology Foundation.

Dr. Troy Plumb continues his collaboration with the International Society of Peritoneal Dialysis North American Research Consortium which published two manuscripts evaluating factors associated with peritoneal dialysis catheter placement outcomes.

ONCOLOGY & HEMATOLOGY



Dr. Nicole Shonka and Dr. Vengoji Ragupathy in the lab.



138

Publications
in 2024

\$11,534,792



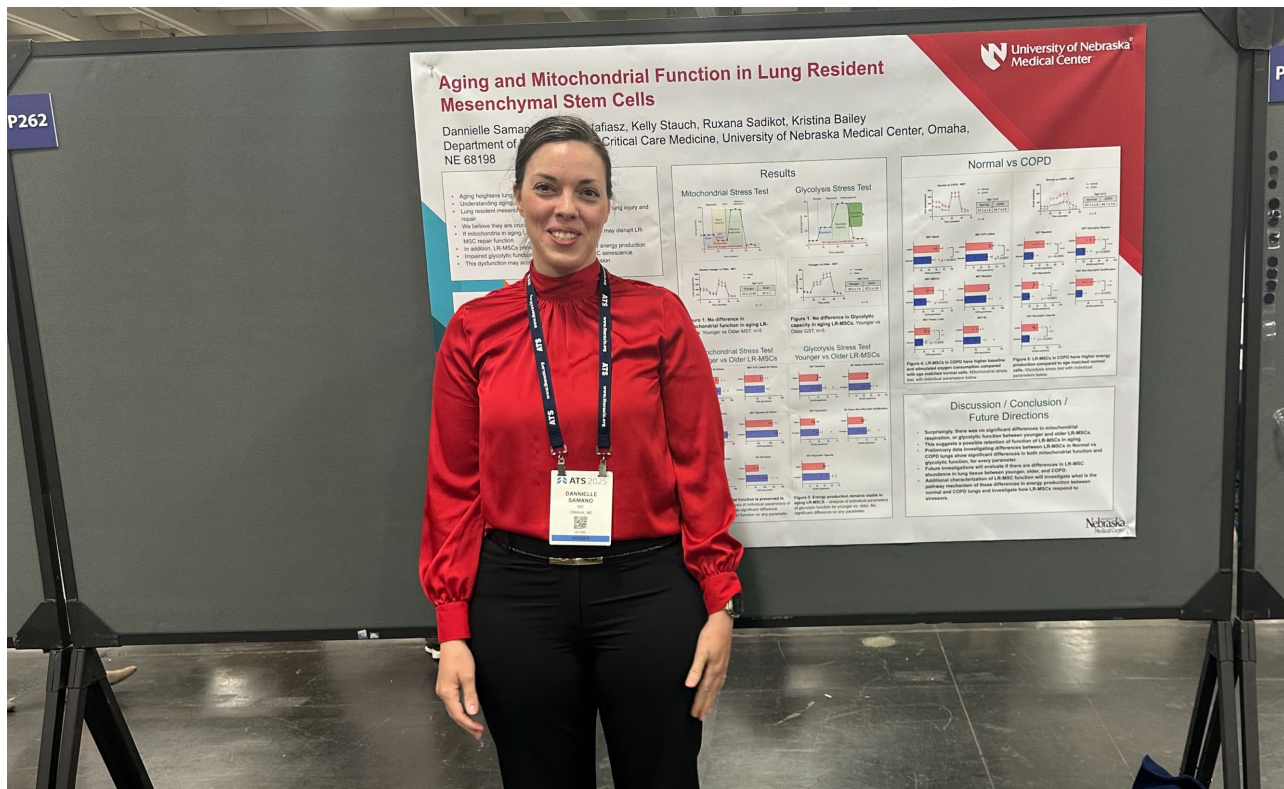
Funding total
in 2024

The Division made significant progress in advancing cancer research and treatment. Faculty members secured major funding for innovative clinical trials and translational studies. Dr. Kelsey Klute led UNMC's participation in the Phase III TIGeR-PaC trial, evaluating RenovoGem—a novel intra-arterial delivery of gemcitabine—for locally advanced pancreatic cancer, which aims to improve drug penetration through dense tumor stroma. Dr. Vijaya Bhatt investigated the efficacy of CYP-001 combined with corticosteroids for treatment of Graft-vs-Host Disease following Allogeneic Transplantation. Dr. Omar Abughanimeh led multiple trials, including a study of Ifinatamab Deruxtecan versus physician's choice of chemotherapy for relapsed small cell lung cancer. Dr. Nicole Shonka received approval for a Buffett Cancer Center R01 Investment Program, and Dr. Matt Lunning led [groundbreaking work](#) delivering the world's first commercial CAR-T cell therapy for mantle cell lymphoma, administered to the first patient in Nebraska.

Dr. Alex Nester contributed to a study using Hemgenix (etranacogene dezaparvovec), a gene therapy enabling the liver to produce clotting factor IX for hemophilia patients, marking a major advancement in treatment options for this condition.

Several faculty members also assumed new leadership roles at the Fred & Pamela Buffett Cancer Center. Dr. Bhatt was named Program Leader for Cancer Prevention and Control, Dr. Shonka for the Targets, Modulators, and Delivery Program, and Drs. Harshraj Leuva and Laura Tenner were appointed Research Liaisons for the Targets, Modulators, and Delivery Program and the Community Outreach and Engagement Program, respectively.

PULMONARY, CRITICAL CARE & SLEEP MEDICINE



PCCSM Fellow, Danielle Samano, MD, presenting her poster at the American Thoracic Society annual meeting.



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Publications
in 2024

\$3,260,694



Funding total
in 2024

The Pulmonary, Critical Care, and Sleep Medicine (PCCSM) Division made significant strides in advancing basic, translational, and clinical research during 2024. Their basic science team progressed on numerous NIH and VA grants while mentoring lab trainees. Their labs investigated the exposomal basis of lung disease, mechanisms of mucin degradation, connections between the microbiome and lung health, impacts of alcohol and aging on lung health, and defining host response to resistant infections.

Clinically, physicians and their teams successfully closed three trials, are conducting and supporting 20 ongoing studies, and have more than five upcoming studies. These clinical research and observational studies span a wide range of topics, including COPD, interstitial lung disease, pulmonary hypertension, cystic fibrosis, non-CF bronchiectasis, and lung cancer. In collaboration with Infectious Diseases, they are developing a center of excellence for patients with NTM and bronchiectasis. The sleep physicians are developing the INSPIRE program in collaboration with ENT, which will provide state-of-the-art care for patients with OSA and additional clinical studies.

Other achievements include the growth of interventional pulmonology with studies in patients with lung cancer, participation in a Merck-sponsored trial, which led to FDA approval of sotatercept for patients with pulmonary hypertension, and the successful completion of studies focused on COPD and idiopathic pulmonary fibrosis, respectively.

RHEUMATOLOGY & IMMUNOLOGY



Members from the Mikuls/Thiele/England labs and MD/PhD students enjoy some time away from research. From left to right: Natalie Sturd, Kristina Pravoverov, Lauren Klingemann, Hannah Johnson, Jack Mordeson, Kimberley Sinanan, Breanna Butler, Nozima Aripova, Michael Duryee, Carlos Hunter, Bridget Kramer.



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Publications
in 2024

\$2,523,977



Funding total
in 2024

Dr. Mikuls, the Stokes-Shackleford Professor of Rheumatology, was awarded the [ACR Excellence in Investigative Mentoring Award](#), which recognizes the importance of the mentor/mentee relationship and the influence it has on career development.

Dr. Cannella, the Gerald F. Moore Professor of Rheumatology, was recognized with the [ACR Distinguished Fellowship Program Director Award](#), signifying that her efforts as the UNMC rheumatology fellowship program director have made outstanding contributions in the mentoring and training of future rheumatologists.

The division boasts a successful funding application cycle, resulting in Dr. Ted Mikuls and Dr. Bryant England receiving notice of award for their respective VA Merit Award applications, and continues its strong publication record, including the Publication of the Quarter (Second Quarter, 2024; Lindsay Helget, lead author).

CLOSING MESSAGE



As we look to the future of medical research, our department stands on firm footing. The rising contributions of published research, the continued development of research programs, and the diverse portfolio of funding are important to our ongoing success.

You may have noticed that we have shifted to individual reporting about each division. The intent was not for comparison, but rather to emphasize that each one of us and each division contributes to our collective departmental success. In many ways, each division is better because of another's achievement. Each division took care to feature not just the number of manuscripts published and amount of research dollars received in 2024, but also of work done in their respective divisions that they are proud of. This includes the training of undergraduates, medical students, and residency trainees, which is important for our future success and creating a legacy.

The world's problems need the solutions that research and innovation provide. Although disruptions — both real and perceived — occasionally emerge, like the current impasse regarding federal funding, the need for discovery will not diminish. While we cannot control external forces, we can control our efforts by continuing to conduct sound science, publishing meaningful results, seeking external funding, and encouraging one another through collaboration and shared purpose. Together, we move science forward — for the greater good.