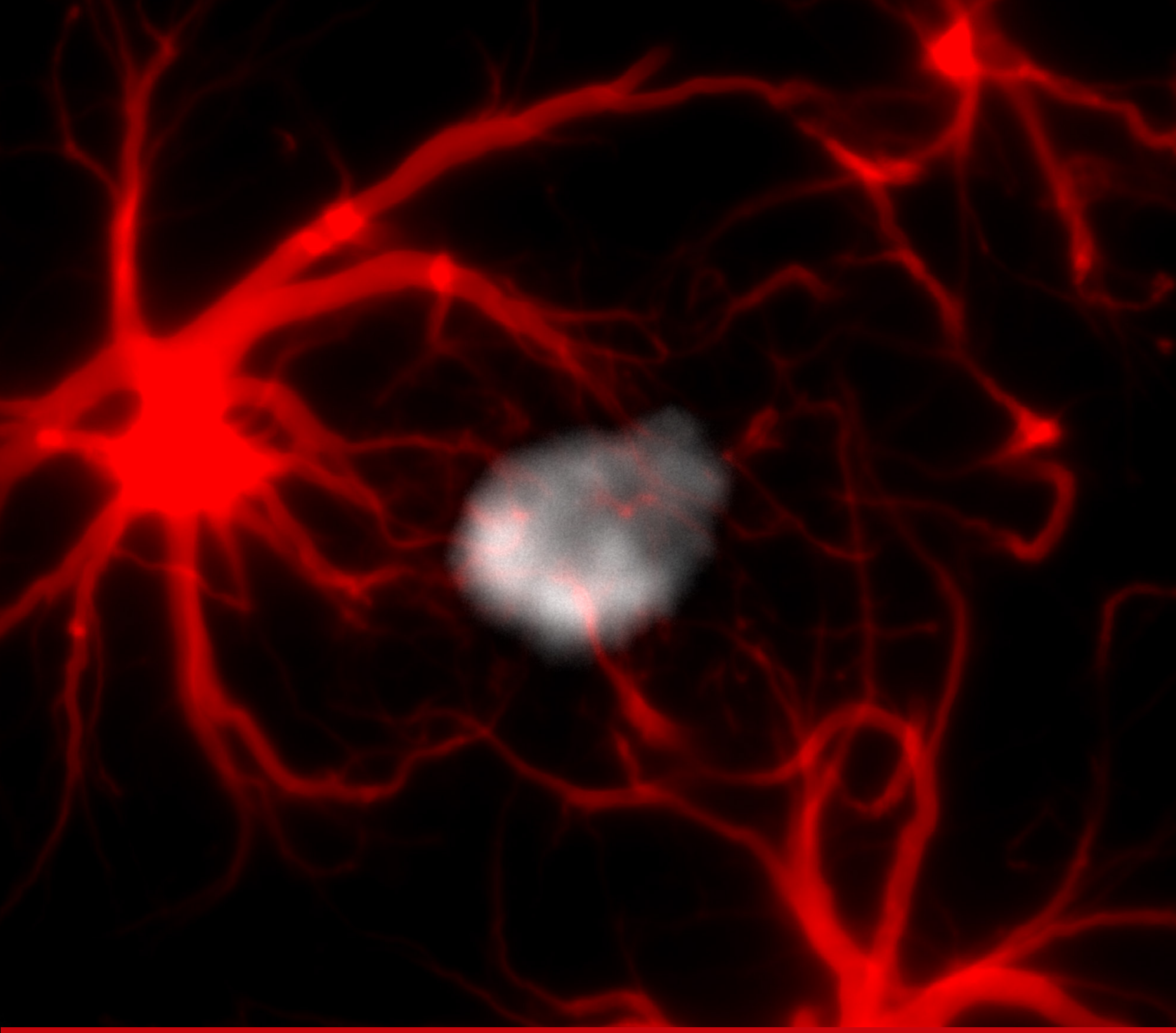

"Star like cells (astroglia) within the brain interacting with neurotoxic amyloid-beta, in Alzheimer's disease".
CMP photo contest winner by Vaibhav Vemuganti (Rey Lab)

CMP | Cellular & Molecular Pathology

NEWSLETTER

Department of Pathology
and Laboratory Medicine
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

2024-2025

Faculty Trainers in the News

CMP Trainer news, through Fall 2024, as published in the UW-Madison School of Medicine and Public Health News

FUNDS, GRANTS, HONORS & AWARDS

UW–Madison leading new research collaboration aimed at treating lung scarring diseases

July 27th, 2024

Allan Brasier, MD

Despite its status as a leading cause of death in the U.S., researchers still don't understand exactly how and why the disease — known as idiopathic pulmonary fibrosis, or IPF — takes hold and progresses, and doctors have few effective therapies at their disposal. Now, an interdisciplinary group of researchers from UW–Madison's Institute for Clinical and Translational Research, School of Medicine and Public Health, College of Engineering and School of Pharmacy will investigate the biological processes that promote lung scarring. With the aid of artificial intelligence and advanced 3D modeling, they will also develop and refine new imaging techniques and drug delivery systems that could aid in halting its progression. The new work builds on expertise in IPF gained over years at UW–Madison and is possible thanks to nearly $11 million in funding from the U.S. Department of Defense.

Transplant Faculty to Develop Test to Detect a Key Contributor to Kidney Transplant Rejection

August 6th, 2024

Matthew Brown, PhD

Shortages of organs for patients who are awaiting a transplant are widespread, with over 100,000 people in the United States currently on the transplant waitlist. This is only one reason that it is critical to develop ways to ensure that a transplant recipient's immune system does not trigger rejection of the donor organ. With a new one-year, $40,000 grant from the Alternatives Research & Development Foundation, Division of Transplantation Assistant Professor Matthew Brown, PhD will be developing a test to better detect endarteritis, an inflammatory condition associated with rejection of a transplanted kidney.

McArdle Assistant Professor Huy Dinh Receives NIH MIRA Award

April 12th, 2024

Huy Dihn, PhD

McArdle Assistant Professor Huy Dinh recently received a $1.8 million 5-year NIH R35 Maximizing Investigators' Research Award (MIRA) that will propel his laboratory's work aiming to understand the role of immune cells known as neutrophils in wound healing and cancers.

Faculty Trainers in the News

CMP Trainer news, through Fall 2024, as published in the UW-Madison School of Medicine and Public Health News

New CADRE project will pool and harmonize data from allergy and asthma birth cohort studies

October 3rd, 2024

James Gern, MD

The National Institutes of Health has awarded James Gern, MD, professor in the Division of Allergy, Immunology, and Rheumatology and the vice chair of research in the Department of Pediatrics, a five-year, $5 million grant to establish a children's allergy and asthma data hub known as the Children's Allergy and Asthma Data Repository (CADRE).

Congratulations Dr. Kang!

July 3rd, 2024

Junsu Kang, PhD

Congratulations to Dr. Junsu Kang for being promoted to the rank of Associate Professor with Tenure in the Department of Cell and Regenerative Biology here at UW-Madison!

Dr. Laura Knoll Receives Kellett Mid-Career Award

June 21st, 2024

Laura Knoll, PhD

In a well-deserved recognition, Dr. Laura Knoll, a distinguished Professor of the Department of Medical Microbiology & Immunology and the Associate Dean for Basic Research Training, has been honored with the prestigious Kellett Mid-Career Award. This accolade, administered by the university to support mid-career faculty members who have excelled in their research endeavors, highlights Dr. Knoll's significant achievements over the past years.

Pilot Program Awards announced

August 15th, 2024

David Kosoff, MD

Six Department of Medicine (DOM) faculty and research staff recently received funding through the Research Pilot Program sponsored by the department's Office of Research Services. The program's aim is to fund innovative basic, translational, clinical and/or health services research that aims to generate data, publications and/or research collaborations that will be used to support external grant applications by DOM faculty and research staff members.

Jeremy Kratz, MD, seeks to refine treatment of rare cancer

November 9th, 2023

Jeremy Kratz, MD

Thanks to a $1 million grant from the U.S. Department of Veterans Affairs, Jeremy Kratz, MD, assistant professor, Hematology, Medical Oncology and Palliative Care, will investigate a new targeted therapy for patients with cholangiocarcinoma, a rare form of cancer that forms in the bile ducts connecting the liver to the gallbladder and small intestine.

2024 Department of Medicine Research Dr. Dudley Lamming named next DOM Vice Chair for Biomedical Research

March 14th, 2024

Dudley Lamming, PhD

Effective April 1, 2024, Dudley Lamming, PhD, associate professor, Endocrinology, Diabetes and Metabolism, will become the Department of Medicine's next Vice Chair for Biomedical Research. The Vice Chair for Biomedical Research promotes and supports the mission of discovery and collaboration in the department, helps train the next generation of laboratory-based researchers, is the primary departmental liaison to basic science departments across campus, and guides the recruitment and professional development of our scientists and basic science-oriented faculty.

Faculty Trainers in the News

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Dr. Lang Awarded DOD Ovarian Cancer Research Program Pilot Award!

January 30th, 2024

Jessica Lang, PhD

Dr. Jessica Lang was recently awarded a Department of Defense Ovarian Cancer Research Program Pilot Award focused on oncogene over-expression through the intersection of copy number amplifications and super-enhancer gains in ovarian cancer. High-grade serous ovarian cancer is amongst the highest copy number altered tumors, and targeted therapies have thus been challenging to predict.

Pathology Assistant Professor Jessica Lang receives New Investigator Program grant award

March 19th, 2024

Jessica Lang, PhD

Congratulations to Jessica Lang, PhD, on being selected for a New Investigator Program grant award by the Wisconsin Partnership Program (WPP) and the Partnership Education and Research Committee (PERC). Dr. Lang's proposal, Functional and genomic comparison of ovarian cancer cells in ascites to primary tumor and associated cell-free DNA, will receive $150,000 over two years. Award recipients are selected based on a full application submission process followed by an individual interview.

MERI member Colleen McDowell awarded R21 grant

May 2024

Colleen McDowell, PhD

Congratulations to MERI member Prof. Colleen McDowell (Dept of Ophthalmology & Visual Sciences, SMPH) on receiving an NIH R21 grant for her project "Optic nerve head cellular interactions in response to mechanical strain and fibrosis"! This multi-PI grant is a collaboration with Dr. Preethi Ganapathy (Dept of Ophthalmology & Visual Sciences, SUNY Upstate Medical University) that aims to understand how and to what extent ONH cells signal to each other to produce matrix fibrosis in response to mechanical strains in glaucomatous damage.

Zachary Morris named Chair of Human Oncology

May 22nd, 2024

Zachary Morris, MD, PhD

Dr. Zachary Morris, a leading expert on innovative approaches to cancer therapy, will be the next chair of the University of Wisconsin School of Medicine and Public Health Department of Human Oncology effective June 2.

Murtaza Awarded NIH Grant to Validate New Blood Test to Improve Monitoring of Breast Cancer During Treatment

July 25th, 2024

Muhammed Murtaza, MBBS, PhD

Patients with early-stage breast cancer and those who are diagnosed with locally advanced breast cancer are often treated with a combination of pre-operative therapy, surgical removal of the tumor, and post-operative therapy. However, many patients are over-treated because the field has lacked effective biomarkers that can detect minimal residual disease, which refers to the very small number of cancer cells that might remain in the body during or after phases of cancer treatment. Detecting residual disease requires highly sensitive laboratory methods, and Division of Surgical Oncology Associate Professor Dr. Muhammed Murtaza recently developed a new test called Structural Variant Enrichment and Normalization, or SVEN, to improve

its detection. Now, with a new three-year, $1 million Cooperative Award (UH3) from the National Cancer Institute, Murtaza and his team will be validating SVEN in a large sample of patients with breast cancer.

Dr. Muhammed Murtaza Named the Director of the Center for Human Genomics and Precision Medicine

July 18th, 2024

Muhammed Murtaza, MBBS, PhD

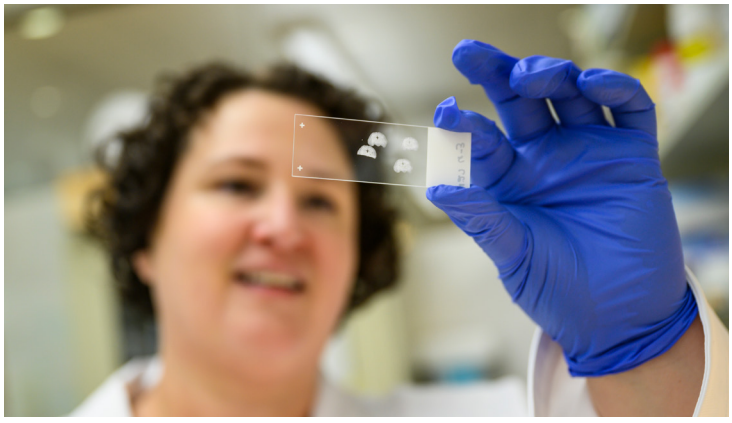
Muhammed Murtaza, MBBS, PhD, Associate Professor in the Division of Surgical Oncology, was named the Director of the Center for Human Genomics and Precision Medicine (CHGPM). His appointment began on June 30, 2024.

Peter Ferrazzano and Claire O'Leary receive support from Research Forward awards

August 19th, 2024

Claire O'Leary, PhD

Two members of the Department of Pediatrics are part of multidisciplinary research teams that received funding through Research Forward. This initiative aims to stimulate and support highly innovative and groundbreaking research at UW–Madison. Research Forward is supported by the Wisconsin Alumni Research Foundation (WARF) and will provide funding for one to two years, depending on the needs and scope of the project.



Christine Seroogy named inaugural E. Richard Stiehm Endowed Chair in Pediatric Allergy, Immunology, and Rheumatology

August 7th, 2024

Christine Seroogy, MD

Christine Seroogy, MD, professor, was recently named the inaugural E. Richard Stiehm Endowed Chair in Pediatric Allergy, Immunology, and Rheumatology. This professorship supports the scholarly pursuits of a member of the department's Division of Allergy, Immunology, and Rheumatology. The endowed faculty position was funded through a gift by E. Richard Stiehm, MD, a retired pediatrician and former member of the UW Department of Pediatrics. Stiehm and his family have deep roots in Madison and at the UW.

Congratulations to the recipients of our 2023 AMD, RP, and Glaucoma & Optic Neuropathies Awards!

February 2024

Nader Sheibani, PhD, Ismail Zaitoun, PhD & Rob Nickells, PhD

It is our pleasure to announce the recipients of our second Age-related Macular Degeneration (AMD) and Retinitis Pigmentosa (RP) Awards competition, as well as the recipient of our very first Glaucoma and Optic Neuropathies Award competition. This year, Prof. Nader Sheibani and Assistant Prof. Ismail Zaitoun have won our two AMD Awards, Prof. Kimberly Stepien has won the RP Award, and Prof. Rob Nickells has won the Glaucoma & Optic Neuropathies Award. Each will receive $50,000 of research support over the course of the coming calendar year.

John Svaren honored with Vilas Professorship

April 25th, 2024

John Svaren, PhD

Professor of Comparative Biosciences at the School of Veterinary Medicine and Waisman Center investigator, John Svaren, PhD, is a recipient of a Vilas Distinguished

Professorship. Svaren is also the director of the Waisman Center IDD Models Core and the interim Associate Vice Chancellor for Research in the Biological Sciences.

Three Faculty Recognized at The Voice Foundation's Annual Meeting

June 10th, 2024

Susan Thibeault, PhD, CCC-SLP

Three Division of Otolaryngology-Head & Neck faculty were recognized at The Voice Foundation's annual meeting held May 29-June 2 in Philadelphia. Drs. Jack Jiang and Susan Thibeault, Professors in the Division of Otolaryngology-Head & Neck Surgery, and Dr. Diane Bless, Professor Emeritus, were recognized for their contributions to the field.

Tyler Ulland receives Vilas Faculty Early-Career Investigator Award

January 11th, 2024

Tyler Ulland, PhD

Congratulations to Tyler Ulland, PhD, who has been awarded the Vilas Faculty Early-Career Investigator Award by the Office of the Provost. This prestigious award recognizes research and teaching excellence in faculty who are in relatively early stages of their careers. The award provides flexible research funds to be used for Dr. Ulland's ongoing research on microglial responses in Alzheimer's Disease and for publication, project assistantships, and other expenses related to his scholarly activity.

RESEARCH

UW study, led by Craig Atwood, PhD, examines potential treatment for Alzheimer's disease in women

November 9th, 2023

Craig Atwood, PhD

Three Division of Otolaryngology-Head & Neck faculty were recognized at The Voice Foundation's annual meeting held May 29-June 2 in Philadelphia. Drs. Jack Jiang and Susan Thibeault, Professors in the Division of Otolaryngology-Head & Neck Surgery, and Dr. Diane Bless, Professor Emeritus, were recognized for their contributions to the field.

Dr. Barb Bendlin coauthors a study linking gut inflammation with aging and Alzheimer's disease

February 1st, 2024

Barb Bendlin, MD

The study, recently published in the Nature journal Scientific Reports, showed that as levels of calprotectin, an inflammatory marker, increased in the volunteer study participants' stool samples, so did the amount of amyloid plaque accumulating in the brains of those with Alzheimer's disease. Levels of Alzheimer's disease biomarkers in cerebrospinal fluid also rose. Meanwhile, test scores of the volunteers' verbal memory function dropped.

Even volunteers who did not have Alzheimer's disease had lower scores on a memory test correlated with higher levels of calprotectin, according to Barbara Bendlin, professor of medicine, UW School of Medicine and Public Health.

Earliest effects of chromosome 21 triplication in brain development discovered

March 15th, 2024

Anita Bhattacharyya, PhD

It is well established that brain development looks different for individuals with Down syndrome, but how early do these differences appear? New Waisman research using gene expression analysis shows that the triplication of the 21st chromosome, which causes Down syndrome, impacts brain development at its earliest stages. This is the first study to present the earliest timepoint yet studied at which the effects of trisomy 21 in the brain can be detected, expanding the understanding of brain development in individuals with Down syndrome.

Faculty Trainers in the News

CMP Trainer news, through Fall 2024, as published in the UW-Madison School of Medicine and Public Health News

Brown Lab Pre-Print Article Published on bioRxiv

June 18th, 2024

Matthew Brown, PhD

The Brown Lab recently published a pre-print article describing its new approach to "hypoimmune" gene editing of pluripotent stem cell (PSC) therapies. The article, titled "Diminished Immune Cell Adhesion in Hypoimmune ICAM-1 Knockout Pluripotent Stem Cells," was published on bioRxiv.

The research team used CRISPR/Cas9 gene editing to "knock out" a critical gene that immune cells use to bind to transplanted cells. Immune cell adhesion/binding is a key first step in the inflammatory response that often leads to cell death and rejection following transplantation, so this new approach has tremendous potential as a promising new class of PSC cellular therapy for preventing rejection.

Researcher clinicians help bridge the gap between scientific discovery and medical care – Part 2

January 10th, 2024

David Gamm MD, PhD

Clinician researchers use many different tools to advance their research, including stem cells and animal models. David Gamm, MD, PhD, is a pediatric ophthalmologist, surgeon, professor of ophthalmology and visual sciences, and director of the McPherson Eye Research Institute, who uses stem cells to study degenerative diseases of the retina, including what he describes as one of the most devastating group of diseases of the eye, retinitis pigmentosa.

Physician Scientist Training Pathway supports new residents who wish to combine medicine and scientific research

May 8th, 2024

Anna Huttenlocher, MD

The University of Wisconsin Department of Pediatrics Physician Scientist Training Program is the only pediatrics-focused physician-scientist training program in Wisconsin. Anna Huttenlocher, MD, professor in the Division of Allergy, Immunology, and Rheumatology, is a pediatric rheumatologist and physician-scientist. The Huttenlocher Research Group investigates how external cues and cell signaling networks regulate immune cell migration. Huttenlocher is concerned about the declining numbers of pediatric physicians engaging in medical research. She addressed that concern in a small way in the book she wrote about her father, pediatric neurologist and neuroscientist, Peter Huttenlocher, entitled, From Loss to Memory, Behind the Discovery of Synaptic Pruning, released in July 2023. Her father conducted ground-breaking medical research at the University of Chicago throughout his career – as he engaged in a clinical practice for nearly 30 years.

Dr. Bruce Klein and Isidoro-Ayza Unlock the Secrets of White-Nose Syndrome

July 16th, 2024

Bruce Klein, MD

An invasive fungus that colonizes the skin of hibernating bats with deadly consequences is a stealthy invader that uses multiple strategies to slip into the small mammals' skin cells and quietly manipulate them to aid its own survival. The fungus, which causes the disease white-nose syndrome, has devastated several North American species over the last 18 years.

Study in Cell Metabolism shows that mice eating less of a specific amino acid are healthier and longer-lived

December 1st, 2023

Dudley Lamming, PhD

Dudley Lamming, PhD, associate professor, Endocrinology, Diabetes and Metabolism, is the lead author of a new study in mice, published recently in the journal Cell Metabolism, showing that cutting down the amount of a single amino acid called isoleucine can extend their lifespan, make them leaner and less frail as they age and reduce cancer and prostate problems.

Faculty Trainers in the News

CMP Trainer news, through Fall 2024, as published in the UW-Madison School of Medicine and Public Health News

Dr. Lixin Rui and team research treatments for drug-resistant cancers

March 28th, 2024

Lixin Rui, PhD

Some patients with certain non-Hodgkin's lymphomas develop resistance to Bruton tyrosine kinase (BTK) inhibitors, which are among the most effective and commonly used drugs for treating the disease.

Mistake leads to breakthrough for UW researchers in fight against cancer

July 9th, 2024

Krishanu Saha, PhD

Video: https://www.channel3000.com/video/mistake-leads-to-breakthrough-for-uw-researchers-in-fight-against-cancer/video_883dc1e4-969e-515a-9928-f47acc5b577a.html

DOM faculty lead new UW–Madison research collaboration aimed at treating lung scarring diseases

July 4th, 2024

Nathan Sandbo, MD

Department of Medicine faculty—Allan Brasier, MD, professor, Endocrinology, Diabetes and Metabolism; Nathan Sandbo, MD, associate professor, Allergy, Pulmonary and Critical Care Medicine; and Chair Lynn Schnapp, MD, George R. and Elaine Love Professor—are key members of a new research collaborative that has just received nearly $11 million in backing from the U.S. Department of Defense to investigate idiopathic pulmonary fibrosis (IPF).

Shelef lab discovers unique rheumatoid factors in COVID-19 patients

January 4th, 2024

Miriam Shelef, MD, PhD

A new study led by Miriam Shelef, MD, PhD, associate professor, Rheumatology, and published in the Journal of Autoimmunity, reports the discovery of unique rheumatoid factors in a large group of patients infected by the SARS-CoV-2 virus during the COVID-19 pandemic.

Rengarajan, Virumbrales-Muñoz, Boeldt publish in Lab on a Chip

March 21st, 2024

María Virumbrales-Muñoz, PhD

Aishwarya Rengarajan, PhD, María Virumbrales-Muñoz, PhD, assistant professor in the UW Department of Ob-Gyn Division of Reproductive Sciences, and Derek Boeldt, PhD, assistant professor in the UW Department of Ob-Gyn Division of Reproductive Sciences, co-authored a new article published in the journal Lab on a Chip. Co-authors include Hannah E. Goldblatt, CNA, and David J. Beebe, PhD.

In "Immune cells and inflammatory mediators cause endothelial dysfunction in a vascular microphysiological system," Rengarajan, Virumbrales-Muñoz, Boeldt, and co-authors evaluated the effect of inflammation and cardiovascular disease on vascular microphysiological systems (MPS). Their research found that inflammation contributes to endothelial dysfunction by disrupting the endothelial barrier.

CMP Welcomes New Trainers

2024-2025 NEW TRAINERS:

Lee Eckhardt, MD

Co-Director of T32 Program, Professor of Cardiovascular Medicine

Samantha Weaver, PhD

Assistant Professor in the Department of Comparative Biosciences

Gustavo Caballero-Flores, PhD

Assistant Professor of Medical Microbiology & Immunology

Quaovi Sodji, MD, PhD

Assistant Professor Department of Human Oncology

Tanja Dominko, DVM, PhD

Professor, Faculty Director, Center for Biomedical Swine Research and Innovation Division of Transplantation

Jingshing Wu, MD, PhD

Assistant Professor, Department of Pediatrics, Cardiovascular Research Center

CMP Graduates & New Students

Congratulations to CMP Graduates!

Congratulations to our 2024 Graduates as their predoctoral careers come to a successful conclusion. You will be missed!

- **Trent Prall, PhD (Bioinformatics Engineer):** *University of Washington*
- **Qijun Zhang, PhD (Postdoc):** *Rey Lab, UW- Madison*
- **Ben Wancewicz**

Welcome to Our New 2024 Students!

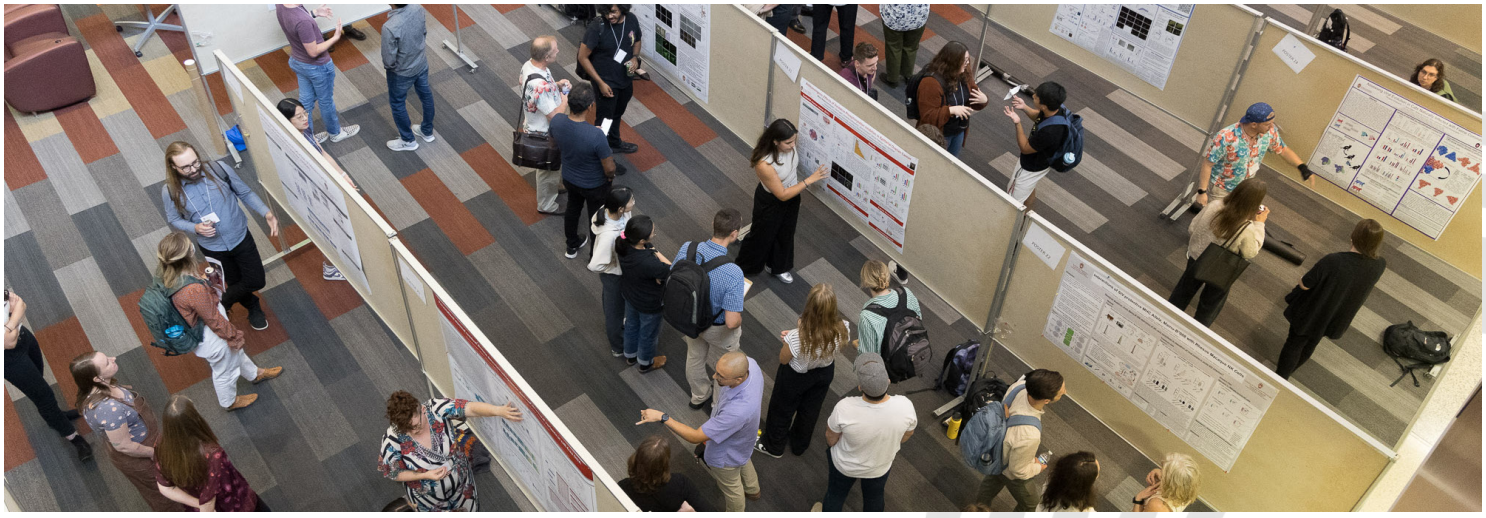
- **Emmie Bell, Purdue University:** *Xin Gao Lab*
- **Mikaela Bray, University of Wisconsin-Madison:** *Lisa Barroilhet Lab*
- **Jiarui Chen, Wuhan University:** *Muhammed Murtaza Lab*
- **Sean Foster, Michigan State University:** *Quaovi Sodji Lab*
- **Nicholas Garcia, Indiana University:** *Anna Huttenlocher Lab*
- **Thomas Harr, University of Wisconsin-Madison:** *Nathan Sandbo Lab*
- **Angela Hsu, University of Michigan – Ann Arbor:** *Melissa Skala Lab*
- **Md Ehsanul Kabir (Ehsan), Bangladesh University:** *Igor Slukvin Lab*
- **Aqsa Khalid, National University of Science and Technology, Pakistan:** *Muhammed Murtaza Lab*
- **Jooyong Kim, University of Wisconsin-Madison:** *Bo Liu Lab*
- **Savannah Lutz, Portland State University:** *Emma Mohr Lab*
- **Ari Machtinger, University of Illinois at Urbana-Champaign:** *David O'Connor Lab*
- **Ally McCullen, Gonzaga University:** *Matt Reynolds Lab*
- **Andrew Norton, University of Minnesota- Twin Cities:** *Adam Bailey Lab*
- **Phuc Pham, Dickinson College:** *Quaovi Sodji Lab*
- **Brendan Rattin, University of Illinois at Urbana-Champaign:** *Kris Saha Lab*
- **Livia Romanov, University of Wisconsin-Madison:** *Jenny Gumperz Lab*
- **Jarron Roy, University of Illinois at Urbana-Champaign:** *Becky Richards Lab*
- **Ale Ruiz, Northeastern Illinois University:** *Gustavo Caballero-Flores Lab*
- **Sophie Vrba, University of Minnesota- Twin Cities:** *Zsuzsa Fabry Lab*
- **Janay Walters, Northern Michigan University:** *Lee Eckhardt Lab*
- **Xiyu Zhang, University of Wisconsin-Madison:** *Xin Gao Lab*

CMP WELCOME WEEK

(Refreshments and conversations on the Terrace - Photo by Abby Evered)

(The CMP Events Committee hosted a "Concert on the Square" Event in July - Photo by Lauren Sarko)

The CMP Welcome Event on Monday, August 26 began with new student orientation, followed by a visit to the terrace. After a full day of CMP Orientation, new CMP students gathered with their current CMP student buddies on the Terrace for refreshments and conversation. CMP welcome was extended into the second week of September when CMP hosted "Dinner and a Show" our annual American Players Theatre visit on the evening of Friday, September 6th.



(CMP Poster session during the 2024 Research Day Event - Photo by Andreas Friedl, MD)

CMP joins Interdisciplinary Biological and Health Sciences Consortium (IBHSC)

We are excited to announce that CMP is part of the newly established Interdisciplinary Biological and Health Sciences Consortium (IBHSC), organized under the School of Medicine and Public Health.

The Interdisciplinary Biological and Health Sciences Consortium (IBHSC) at the University of Wisconsin School of Medicine and Public Health offers a rich, lively and supportive scientific community centered around collaborative learning and research in nine dynamic programs.

Participating PhD Programs

- Biomedical Data Science
- Cancer Biology
- Cellular and Molecular Pathology
- Endocrinology – Reproductive Physiology
- Epidemiology
- Molecular and Cellular Pharmacology
- Molecular and Environmental Toxicology
- Neuroscience
- Population Health

Starting in February 2025, CMP offered a joint recruitment event, which included an IBHSC welcome dinner which gave candidates a chance to mingle between programs followed by a joint poster session. The following day, candidates were invited to CMP-specific programming, where they met with current students, toured Madison, and had dinner with Faculty and current students.