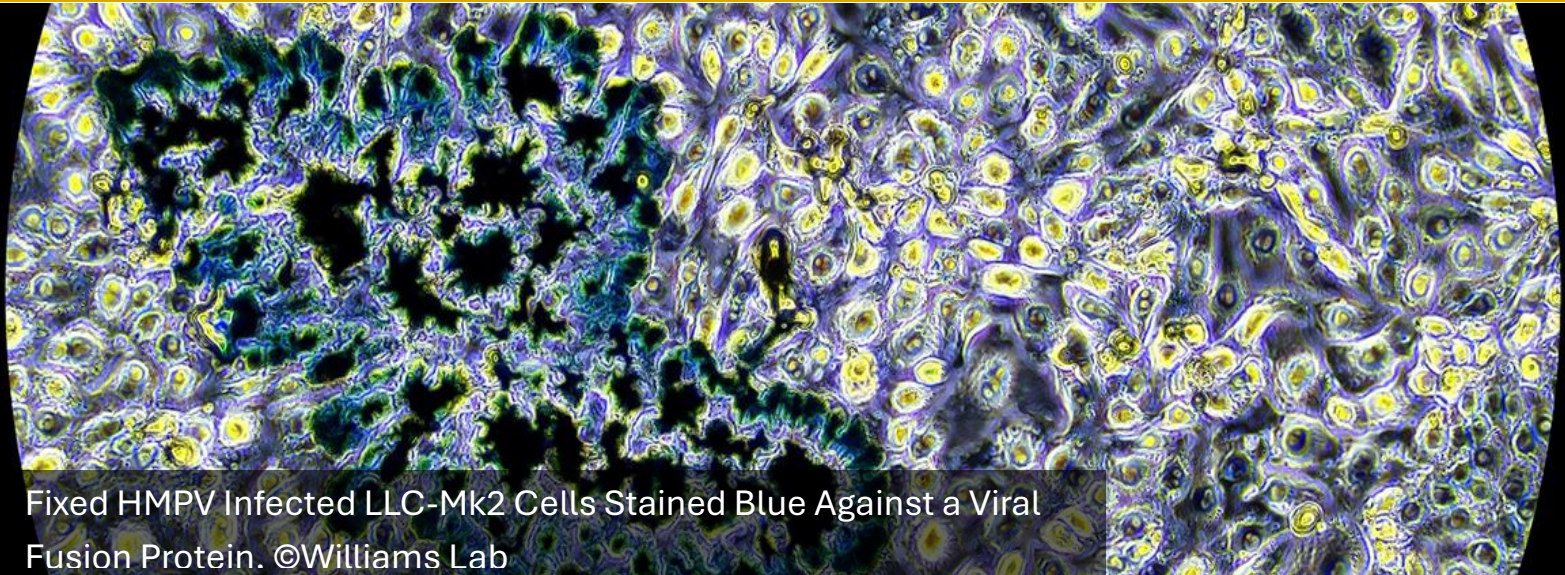
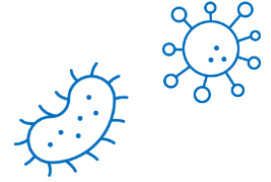




MMI NEWS



Fixed HMPV Infected LLC-Mk2 Cells Stained Blue Against a Viral Fusion Protein. ©Williams Lab

As we welcome the Spring season, we're excited to highlight the above image from the John Williams lab that showcases the beauty and precision of modern virology research. This image captures human metapneumovirus (HMPV) infection in fixed LLC-Mk2 cells, with viral plaques revealed through antibody staining against the viral fusion protein and visualized using a TrueBlue substrate. Imaged at 10× magnification on an Echo Revolve microscope, the result is both scientifically informative and visually compelling.

Beyond its aesthetic appeal, this image reflects the meticulous work behind understanding viral infection and spread at the cellular level. Techniques like these allow researchers to directly observe how viruses interact with host cells, providing critical insights that drive discovery and innovation.

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Dr. Jeniel Nett Tackles Catheter-Related Infections Through Collaboration

The Wisconsin Partnership Program (WPP) at the University of Wisconsin School of Medicine and Public Health has awarded \$3.6 million through its Collaborative Health Sciences Grant Program, supporting six interdisciplinary research teams tackling some of today's most pressing health challenges.

Among the funded projects is a groundbreaking study led by Jeniel Nett, MD, PhD, associate professor in the Department of Medical Microbiology and Immunology, in collaboration with Christian Franck, PhD, professor of Mechanical Engineering. Their project, Understanding and Modulating Host Defense Against Vascular Catheter Infections, explores how the body's immune system interacts with medical devices used to deliver life-saving treatments.

Central venous catheters, while essential for patient care, can also be a source of serious bloodstream infections — including those caused by *Candida auris*, a dangerous and drug-resistant fungal pathogen. Dr. Nett's team aims to understand how the physical properties of catheter surfaces, such as stiffness, influence the body's immune defense and the effectiveness of neutrophils, the white blood cells that serve as the body's first line of defense against infection.

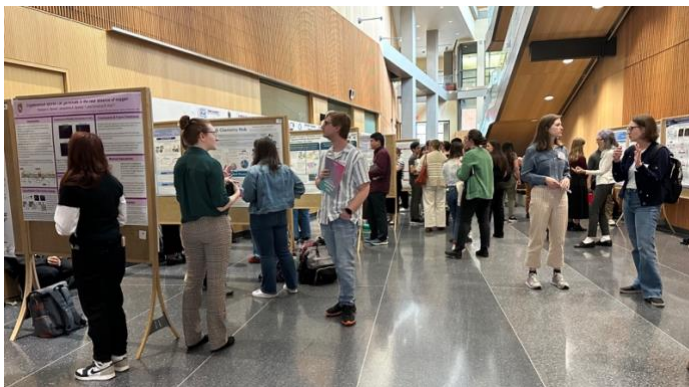
By combining expertise from infectious disease and engineering, this interdisciplinary effort seeks to guide the design of next-generation medical devices that not only deliver treatment but also actively support the body's natural defenses. The potential impact reaches beyond Wisconsin, offering insights that could reduce infections and health care burdens nationwide.

“WPP's Collaborative Health Sciences Grant Program channels the strength of interdisciplinary collaboration, bringing together experts across



diverse fields to explore new solutions to complex health problems,” says Amy Kind, MD, PhD, SMPH associate dean for social health sciences and programs, and WPP executive director. “We look forward to the advancements and positive health impacts this research will yield in the years ahead.”

This innovative project reflects Dr. Nett's ongoing commitment to understanding infectious diseases and improving patient outcomes through translational, team-based science.



2026 Perlman Symposium Registration is Open

Registration is now open for the 2026 Perlman Symposium on Antibiotic Discovery and Development!

Join us on **Friday, May 15, 2026, from 9:00 AM to 5:00 PM** at the Ebling Auditorium in the Microbial Sciences Building at the University of Wisconsin–Madison.

This annual event brings together leading researchers, trainees, and professionals in the field of microbiology to share groundbreaking discoveries and discuss new directions in antibiotic research.

The 2026 program will feature four distinguished keynote speakers:

- Dr. Kim Davis, Johns Hopkins University
- Dr. Victor Nizet, University of California San Diego
- Dr. Federico Rey, University of Wisconsin–Madison
- Dr. Kendra Rumbaugh, Texas Tech University

The Symposium will also include poster sessions highlighting trainee and early-career research, networking opportunities, and a fun afternoon reception. Selected poster presenters will also have the opportunity to give “lightning talks” on the main stage, offering a dynamic platform to share their work with the broader community.

Registration is free and open from March 1 through April 30, 2026. Abstract submissions for poster presentations are due by April 15, 2026.

Whether you are a returning participant or new to the Perlman Symposium, this year’s event promises a full day of insightful discussions, collaborative connections, and innovative science shaping the future of antibiotic discovery and development.

For registration, abstract submissions, and additional event details, please visit the Perlman Symposium website at <https://perlman.mmi.wisc.edu>.

Questions about registration or abstract submission can be directed to the Department of Medical Microbiology’s Immunology Communications Manager, Allison Bauer, at allison.bauer@wisc.edu.

Dr. Andrew Hryckowian Receives Vilas Faculty Early-Career Investigator Award

The University of Wisconsin–Madison has announced that Dr. Andrew Hryckowian, assistant professor in the Department of Medical Microbiology and Immunology, has been selected to receive a Vilas Faculty Early-Career Investigator Award.



This prestigious honor recognizes outstanding early-career faculty members who have demonstrated exceptional research accomplishments and show great promise for continued scholarly excellence. The award provides \$60,000 in flexible research funding over a three-year period (July 1, 2025 – June 30, 2028) to support research, publications, and scholarly activities.

Dr. Hryckowian's research explores the molecular and genetic foundations of gut microbiome dynamics—how microbial communities in the gut interact, adapt, and influence human health. His lab works to uncover the mechanisms behind “problematic” microbial communities that can lead to or worsen gastrointestinal infectious diseases.

Using a combination of *in vitro* and *in vivo* approaches, including gnotobiotic and conventional mouse models, Dr. Hryckowian and his team investigate how microbial communities change under different conditions. Collaborations with clinicians at UW Health help translate these discoveries into potential clinical applications, bridging basic microbiology and patient care.

The Vilas Faculty Early-Career Investigator Award will enable Dr. Hryckowian to continue advancing this critical research, contributing to a deeper understanding of the microbiome and its role in health and disease.



UPCOMING MMI EVENTS

- **FRIDAY, MARCH 20**
MMI Seminar Series
Dr. Patricia Champion
- **FRIDAY, MARCH 20**
MMI TREATS
Host: Alexander Lab
- **FRIDAY, APRIL 10**
MMI Seminar Series
Dr. Michael Gale
- **FRIDAY, APRIL 17**
MMI Seminar Series
Dr. Joseph Zackular
- **FRIDAY, APRIL 24**
MMI Seminar Series
Dr. Juliet Morrison
- **FRIDAY, MAY 1**
MMI Seminar Series
Dr. Thomas Burke
- **FRIDAY, MAY 15**
Perlman Symposium on
Antibiotic Discovery &
Development

Katie Barnes Awarded Microbiology Society 2026 Prize

The Microbiology Society has announced the recipients of its 2026 Prizes, honoring individuals whose outstanding contributions continue to advance the field of microbiology. These awards—nominated and selected by members—will be formally presented at the Society’s Annual Conference 2026, taking place in Belfast from 13–16 April. Prize winners will also deliver their prestigious Prize Lectures during the conference.

Among this year’s honorees are the recipients of the Equality, Diversity and Inclusion (EDI) Prize 2026: Professor Edel Pérez-López, Professor Bruno Francesco Rodrigues de Oliveira, Dr Landon J. Getz, Katie Barnes, and Dr Nicholas de Mojana di Cologna. Together, they are recognized for their work with the Pride in Microbiology Network, a global initiative amplifying the voices and visibility of 2SLGBTQIA+ microbiologists.

At the heart of this year’s EDI Prize cohort is Katie Barnes (she/hers), a fifth-year graduate student in the Microbiology Doctoral Training Program at the University of Wisconsin–Madison, USA. Working in the lab of Dr Laura Knoll, Katie has built a research career defined by curiosity, dedication, and a drive to understand the complexities of host–pathogen interactions.

Katie earned her Bachelor’s degree in Molecular, Cell, and Developmental Biology from the University of California, Santa Cruz, where her interest in microbiology first took root. Since then, she has worked on uncovering the relationships between microbes and their hosts—first examining the dynamics between *Wolbachia* and human filarial parasites, and now shaping her thesis around how *Toxoplasma gondii* infection alters arginine metabolism in host cells.

In addition to her scientific achievements, Katie is deeply committed to science communication and plays an active role in advocating for evidence-based science policy in the United States. Her engagement beyond the laboratory reflects her belief in the importance of connecting scientific research with the broader public and policymakers.



Reflecting on her team’s recognition, Katie shared:

“I feel an enormous amount of pride in winning this prize. We continue to serve our 2SLGBTQIA+ community through challenging times, and this award is an affirmation of the importance and impact of that work.”

Katie’s leadership within the Pride in Microbiology Network demonstrates her dedication to creating a more inclusive scientific community—one where people of all identities feel seen, supported, and empowered to pursue careers in microbiology.

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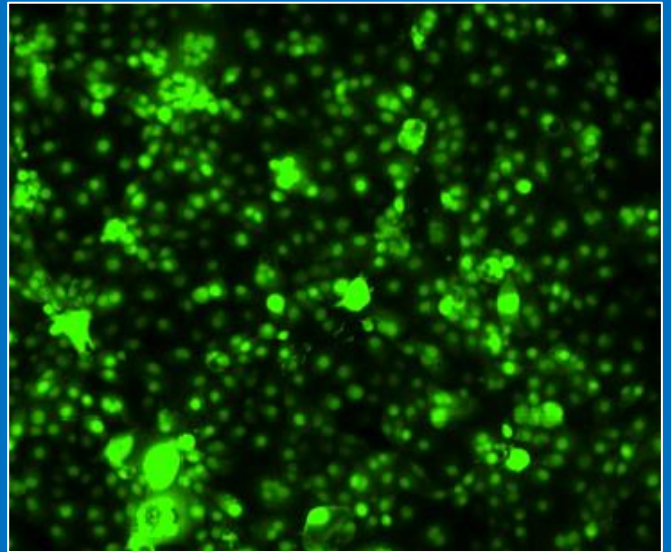
About the EDI Prize Winners

While Katie shines as an emerging leader, she is joined by four remarkable colleagues, each contributing uniquely to the Pride in Microbiology Network:

- Professor Edel Pérez-López (he/him) – Associate Professor of Phytopathology at Université Laval, Canada, leading interdisciplinary research on sustainable plant protection. Edel emphasizes visibility and belonging, stating the award is “both affirmation and a call to action.”
- Professor Bruno Francesco Rodrigues de Oliveira (he/him) – Assistant Professor of Bacteriology at Fluminense Federal University, Brazil, and founder of the BacMar Lab focused on marine bacteriomes. Bruno describes the recognition as a motivation to keep “amplifying the voices of LGBTQIA+ microbiologists all around the world.”
- Dr. Landon J. Getz (he/him) – Postdoctoral Fellow at the University of Toronto, investigating phage–host interactions. A vocal advocate for Queer and Trans people in STEM, Landon celebrates the award as a validation of the team’s dedication.
- Dr. Nicholas de Mojana di Cologna (he/him) – Postdoctoral Associate at SUNY, USA, studying oral bacterial pathophysiology. Nicholas highlights the honor as recognition of the Network’s ongoing global expansion.

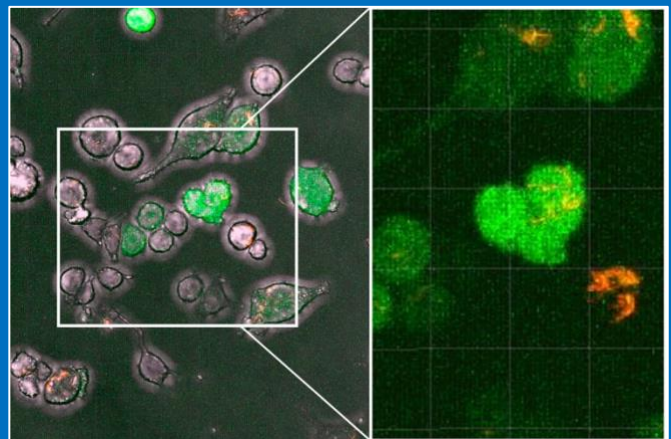


Cool Science Images from MMI!



LLC-MK2 cells infected with human metapneumovirus (HMPV) containing a green fluorescent reporter imaged at 10X magnification using Echo Revolve microscope.

©Abenaya Muralidharan, Williams Lab



While examining confocal data of GFP-labeled macrophages infected with mCherry-labeled BCG, a heart-shaped cell stands out.

©Marina Slawinski, May Lab

Four MMI Postdocs Receive Wisconsin Partnership Program Grants

Given the current funding landscape, the Wisconsin Partnership Program (WPP) at the University of Wisconsin School of Medicine and Public Health (SMPH) announced its enhanced and continued commitment to grow the next generation of promising scientists through a record 17 new Postdoctoral Grant Program awards.

The Postdoctoral Grant Program provides career development grants to enhance and expand postdoctoral research, education and professional development at SMPH. Grants are up to \$20,000 each over one year.

Grant recipients will collaborate with their supervising mentor who nominated them for this award as they conduct a research or education project or pursue a professional development opportunity to advance their career with a focus on improving health in Wisconsin and beyond.

“The Wisconsin Partnership Program is proud to support the professional development of SMPH postdocs through our Postdoctoral Grant Program and by investing in this substantial cohort of recipients. Given the broader funding context, increasing the availability of WPP’s support is more important than ever. Through these awards, we make a commitment to next generation research and recognize its potential to impact health for all,” said Amy Kind, MD, PhD, associate dean for social health sciences and programs at the UW School of Medicine and Public Health, and executive director, Wisconsin Partnership Program. “Postdoctoral trainees represent tremendous potential for Wisconsin’s health workforce, and this grant program provides essential resources to help them launch their

careers and advance innovative research to improve health across our state.”

This year, four individuals from the Department of Medical Microbiology & Immunology were selected as award recipients.

Our Award Recipients

Development and Optimization of Cat Intestine Microphysiological Devices to Study *T. Gondii* Sexual Development

Andrew Gale, PhD; Supervising Mentor: Laura Knoll, PhD, Professor and Associate Dean, Department of Medical Microbiology and Immunology

Determining the Impact of Innate Immunity on the Production of Cryptic Proteins from Defective Influenza Virus Genomes

Elizabeth Horton, PhD; Supervising Mentor: Andrew Mehle, PhD, Professor, Department of Medical Microbiology and Immunology

Nutritional Influence on Microbiota and Immune Responses During *Cryptosporidium* Infections

Bethany Korwin-Mihavics, PhD; Supervising Mentor: Margaret Alexander, PhD, Assistant Professor, Department of Medical Microbiology and Immunology

Mechanistic Dissection of Microbiome-mediated Effects of Dietary Arginine During IBD

Chi Yan, PhD; Supervising Mentor: Margaret Alexander, PhD, Assistant Professor, Department of Medical Microbiology and Immunology

Professor JD Sauer Receives Prestigious Vilas Associate Award

Professor JD Sauer has been selected as a Vilas Associate, a prestigious award that recognizes new and ongoing research of the highest quality and significance. The Vilas Associates Competition is highly competitive, with recipients chosen by divisional Research Committees based on the strength and impact of a detailed research proposal.

As a Vilas Associate, Sauer will receive up to two-ninths of research salary support for the summers of 2026 and 2027, along with a \$12,500 flexible research fund in each of the two fiscal years. The award is granted only once to any faculty member, underscoring the distinction of this recognition.

Sauer's research program focuses on bacterial pathogenesis and immunology, with a particular emphasis on understanding how intracellular pathogens interact with and evade host immune defenses. His lab uses *Listeria monocytogenes*, a Gram-positive foodborne pathogen, as a model organism to investigate the dynamic "tug of war" between invading bacteria and the host immune system. Notably, infection with *L. monocytogenes* leads to the development of strong, long-lasting cell-mediated immunity, making it a powerful system for studying immune protection.

Through genetic approaches applied to both pathogen and host, Sauer's lab identifies the bacterial factors that promote disease and the host pathways that drive immunity. Using transposon-based random mutagenesis, his team has uncovered key roles for bacterial central metabolism and cell wall biosynthesis in

enabling *L. monocytogenes* to survive within normally bactericidal macrophages.

In addition, Sauer's group employs well-established ex vivo and in vivo murine models of listeriosis to examine how specific innate immune signaling pathways shape acute infection outcomes and the development of long-term immunity. By combining bacterial mutants with host cells or mice lacking defined immune signaling molecules, the lab dissects how inflammasome activation and type I interferon responses influence host defense.

The Vilas Associate award will provide critical support for Sauer's ongoing research program and enable continued progress toward uncovering the mechanisms that govern infection, immunity, and immune-based therapeutic strategies.



Nancy Keller Death Cap Mushroom Research Published in PNAS

The Changing Chemistry of Invasive Death Cap Mushrooms

by LYDIA PICOTTE

University of Wisconsin–Madison researchers just released a groundbreaking study on the same mushrooms behind an uptick in poisonings in California.

The California Department of Public Health reported 39 related poisonings in the last three months leading to the death of four people, at least three liver transplants and many more people sick. The culprit? In each case it is believed death cap mushrooms are the source.

Even before the uptick in poisonings, these dangerous mushrooms were the subject of a collaborative study by two departments at the University of Wisconsin–Madison and the USDA-ARS Cereal Disease Lab in St. Paul, Minnesota. The scientists have just published new research about the chemistry of death cap mushrooms (*Amanita phalloides*). Researchers learned that the species is not only spreading rapidly as an invasive fungal species in the United States, but the move across continents has changed the chemistry of the species.

The final paper, titled “Leaderless RiPPs Expand the Repertoire of Fungal Secondary Metabolites,” is published in the Proceedings of the National Academy of Sciences (PNAS). It’s co-authored by Anne Pringle, the L&S Mary Herman Rubinstein and Vilas Distinguished Achievement Professor of Botany, Nancy Keller, the Robert L. Metzenberg and Kenneth B. Raper Professor of Mycology in Medical Microbiology & Immunology and Plant Pathology and Milton Drott, a research leader at the USDA-ARS Cereal Disease Lab. The paper is



led by Sung Chul Park, a natural product chemist in the Keller lab.

“What we hope people take away from this paper,” says Keller, “is that scientists are actively studying this serious issue. We’re working hard to understand why it’s happening.”

When Pringle first came to UW–Madison, she was interested in the death cap mushroom’s migration from its original locations in Europe to California. Since arriving in the United States in the 1930s — likely in the roots of a tree — the mushroom has spread across the West Coast. According to Cecelia Stokes, a PhD student in the Pringle Lab studying the death cap, the organisms can now be found as far south as Mexico and north of the Canadian border. They’ve also been identified in the New England area but seem to be spreading less quickly on the eastern side of the country.

[continued on next page >>](#)

“I have no doubt these invasive mushrooms are impacting native ecosystems, but we are still working towards understanding the actual consequences and bigger picture,” Stokes says. “We do know death cap mushrooms are popping up in dense patches in forests from year to year. You can find more than 40 mushrooms under one tree, and this is abnormal, especially in comparison to the native mushroom species.”

Keller and Pringle began working together to determine if the chemistry of the death cap was different between the two continents. They found that the mushrooms in California are producing previously unknown natural products, otherwise referred to as secondary metabolites, which have not been found in Europe. Not only did they confirm that the mushroom chemistry has changed since arriving in North America, but they discovered some metabolites that have never been isolated before in any fungus.

Prior to the publication of this study, the team released another paper which sequenced the death cap’s genes, called MSDIN genes. That research led to the discovery of uncharacterized MSDIN genes on the mushrooms in California. This newest publication uncovers the new natural products being created by several new MSDIN genes. This was done by isolating the peptides encoded in the accessory MSDIN genes and correlating peptide production with gene expression.

The revelation is especially timely, as the state of California continues to receive reports of death cap poisonings and has issued a warning about eating foraged mushrooms.

This isn’t the first time death caps have made the news. On Dec. 16, Netflix released a true crime

documentary titled *Death Cap: The Mushroom Murders*, which details the story of an Australian woman who was arrested in 2023 for murdering three family members by serving them beef Wellington that had been cooked with this toxic mushroom.

The next step for researchers will be to continue examining their newly discovered products for bioactivity. Since so many drugs and medicines come from fungi and bacteria, discoveries like these will inform future research at universities and in biotechnology companies.

Make an Impact in Medical Microbiology & Immunology!

The Department of Medical Microbiology & Immunology is committed to providing comprehensive scientific instruction, conducting meaningful research, and offering expert consultation and service in microbiology and immunology as they relate to human health and disease. Your gift helps us advance this mission, fueling innovation, education, and collaboration at every level.

Your generosity makes a lasting impact, empowering students, advancing research, and strengthening our scientific community. Thank you for helping us continue to lead and innovate.

You can direct your support to one of three vital funds:



Medical Microbiology & Immunology Fund

Supports the department's greatest needs, including academic events, student engagement initiatives, and our seminar series that brings cutting-edge science to our community.

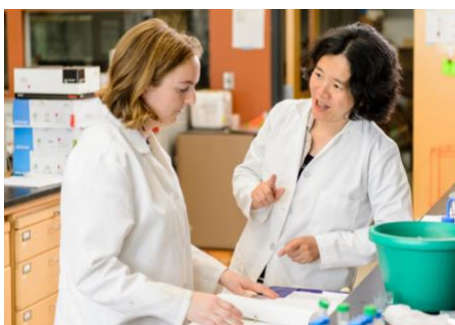
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JD Sauer Elected to American Academy of Microbiology

In February 2026, the American Academy of Microbiology (AAM) announced the election of 63 new Fellows to its Class of 2026. AAM is an honorific leadership group within the American Society for Microbiology (ASM), selects Fellows through a competitive, peer-reviewed process recognizing excellence and significant contributions to the microbial sciences.

This year, 145 scientists were nominated worldwide. The 63 elected Fellows represent 14 countries, highlighting the global scope of microbiology. Over the past 50 years, more than 2,700 scientists have been elected to the Academy across diverse areas of microbial research.

Among the new Fellows is John-Demian (JD) Sauer, Ph.D. Sauer is recognized for his research in bacterial pathogenesis and immunology, particularly his work on interactions between intracellular pathogens and the host immune system.

His laboratory uses *Listeria monocytogenes*, a Gram-positive foodborne pathogen, to study how bacteria invade and survive within host cells and how immune defenses are activated. Through genetic approaches in both pathogen and host, Sauer and his team have identified bacterial factors required for disease progression and host pathways that shape effective immune responses.

His research has clarified the role of bacterial metabolism and cell wall biosynthesis in

pathogenesis, as well as mechanisms regulating innate immune signaling, including inflammasome activation and type I interferon responses.

Using transposon mutagenesis and murine models of listeriosis, the Sauer lab has identified bacterial mutants that alter immune signaling and influence long-term cell-mediated immunity.

In addition to advancing understanding of infection biology, Sauer's work explores the use of *Listeria monocytogenes* as a potential immunotherapeutic platform.

ASM represents more than 38,000 scientists and health practitioners worldwide and works to advance the microbial sciences through conferences, publications, certification programs and advocacy. Election to the Academy is considered one of the highest honors in microbiology and recognizes sustained scientific achievement and leadership.



Faculty Spotlight: John Williams, PhD

Hometown: Citizen of the US – I moved every couple of years as a kid

Zodiac Sign: Virgo (lol)

Research Overview

The focus of Dr. Williams' research is the basic and clinical investigation of respiratory viruses. Respiratory infections are the leading cause of death in children less than 5 years old worldwide. Moreover, respiratory infections are a major cause of disease and death in immunocompromised patients such as transplant recipients.



The lab's major area of research is the cell entry, immunity, and pathogenesis of human metapneumovirus.

What inspired you to select your field of study?

Viruses are like super cool little beasts. Plus, disease always involves the virus and the host – that biological conversation fascinates me.

What is one piece of advice you would give to students?

Work hard at something you care about, and play hard when you're not working. Is that two pieces of advice?

When you're not in the lab, how do you spend your time?

Walking, hiking, cycling, or kayaking.

If you didn't become a scientist, what career would you have pursued?

Rock musician.

What is the best meal you've ever had?

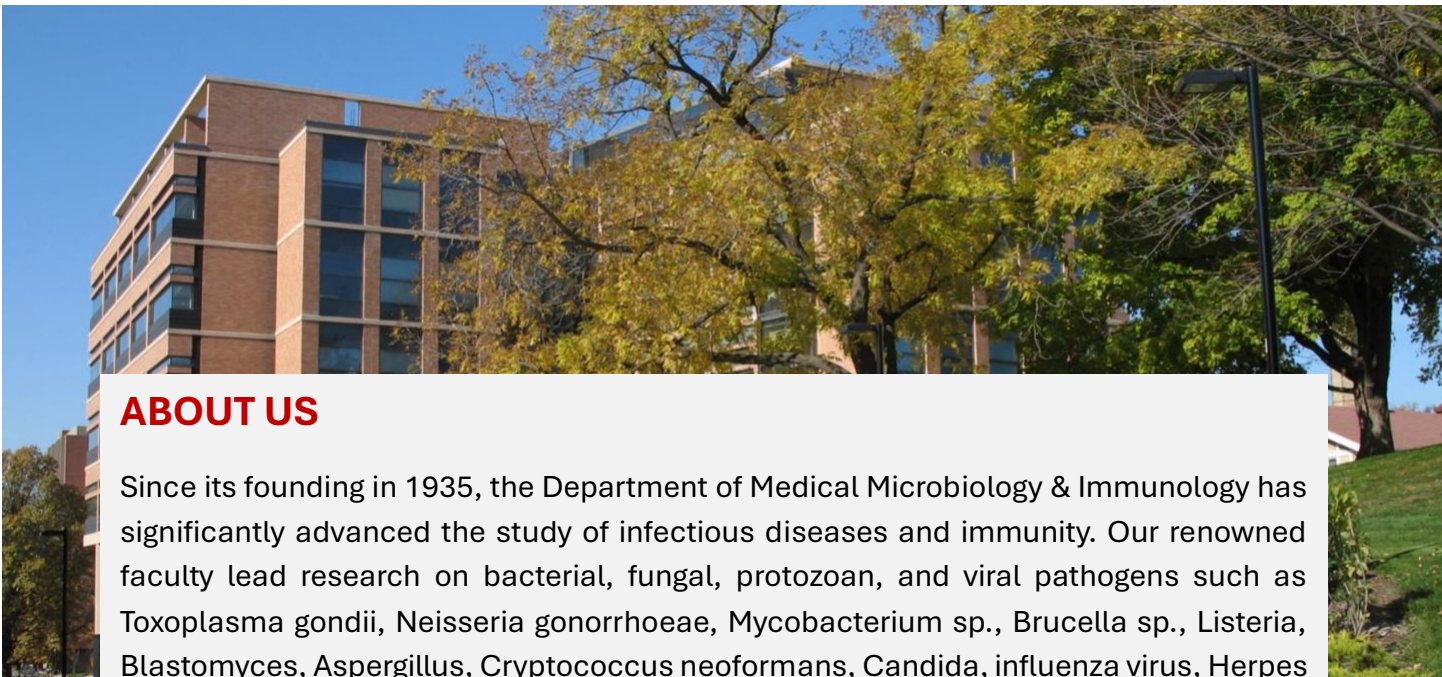
"Snow Lion" Tibetan restaurant in Bloomington, IN many years ago.

You must sing karaoke, what song do you pick?

"Ball & Chain" by Social Distortion

Have you ever completed anything on your "bucket list"? If so, what was it?

Backpacking around Europe for 3 months



ABOUT US

Since its founding in 1935, the Department of Medical Microbiology & Immunology has significantly advanced the study of infectious diseases and immunity. Our renowned faculty lead research on bacterial, fungal, protozoan, and viral pathogens such as *Toxoplasma gondii*, *Neisseria gonorrhoeae*, *Mycobacterium* sp., *Brucella* sp., *Listeria*, *Blastomyces*, *Aspergillus*, *Cryptococcus neoformans*, *Candida*, influenza virus, Herpes simplex, enterohemorrhagic *E. coli*, and uropathogenic *Escherichia coli*. They also explore immunological topics including regulatory T cell biology, leukocyte migration and vaccine development. Additionally, our labs study the roles of diet, the immune system and the gut-brain-axis in the intestinal microbiome.

We offer undergraduates rigorous coursework and research opportunities, and our nationally acclaimed Microbiology Doctoral Training Program allows graduate students to earn a Ph.D.

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