2026 Michigan Pioneer Fellows Symposium

April 23, 2026

1:00 - 6:00 p.m.

BSRB Kahn Auditorium

MICHIGAN PIONEER FELLOWS PROGRAM

Table of Contents

Symposium Schedule

1:00 p.m.	Welcome and Introductions - BSRB Kahn Auditorium
1:05 p.m.	Talks by Senior Pioneer Fellows - 10 talks (with a 10-minute break after 5 talks)
	• Guolei Zhao, Ph.D. (2023) • Kristy Weaver, Ph.D. (2023) • Jingcheng Wang, Ph.D. (2023) • Morgan Pimm, Ph.D. (2023) • Siva Kumar Natarajan, Ph.D. (2023) • 10-minute break • Jacob Moran, Ph.D. (2023) • John Han, Ph.D. (2023) • Fabio Gómez Cano, Ph.D. (2023) • Brian Curtis, Ph.D. (2023) • Christophe-Sebastien Arnold, Ph.D. (2023)
3:10 p.m.	Break - Coffee & Cookies
3:30 p.m.	Keynote Address: Dr. Joseph C. Wu, M.D., Ph.D., Professor & Director, Stanford Cardiovascular Institute, Stanford University **"New Approach Methodologies (NAMs) to Accelerate Clinical Trials in a Dish (CTiD)"**
4:30 p.m.	Poster Session - BSRB Atrium
5:30 p.m.	Concluding Remarks and Reception

Symposium Planning Committee

Pioneer Fellows
Morgan Pimm, Ph.D. (Co-chair), 2023 Cohort
Ritvija Agrawal, Ph.D. (Co-chair), 2024 Cohort
Hitarthi Vyas, Ph.D., 2024 Cohort
Luis Ortiz-Rodriguez, Ph.D., 2022 Cohort
John Han, Ph.D., 2023 Cohort
Jingcheng Wang, Ph.D., 2023 Cohort
Daniel Duffy, Ph.D., 2025 Cohort
Pioneer Program Coordinators
Traci Carulli
Jacqueline Popma, Ph.D.
Pioneer Directors
Carole Parent, Ph.D.
Yatrik Shah, Ph.D.
Ursula Jakob, Ph.D.

The Program

Overview

The Medical School and its Endowment for the Basic Sciences, the Life Sciences Institute, the College of Literature, Science, and the Arts, the College of Pharmacy, and the School of Dentistry at the University of Michigan (participating units) have partnered to offer the Michigan Pioneer Fellows program, a highly competitive postdoctoral fellowship program to enhance the research program of the entire life and biomedical sciences enterprise at Michigan.

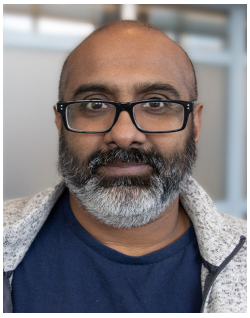
The Michigan Pioneer Fellows program provides financial and mentoring support to highly motivated and accomplished post-doctoral fellows bound for research-intensive careers. The program offers competitive salary and financial resources, and provides mentorship focused on nurturing and launching innovative scientists into groundbreaking careers.

History

In 2023, the Michigan Life Sciences Fellows program (MLSF) and the Michigan Postdoctoral Pioneer program (MP3) combined to form the Michigan Pioneer Fellows program. These two programs merged to provide maximum professional growth, mentorship and collaborative opportunities to participants. Combined, these two programs offer postdoctoral fellows unique opportunities to interact and grow with a cohort of peers, while receiving both the independence to pursue their scientific projects and the necessary support to develop as scientific leaders. The idea for the Michigan Life Sciences Fellows program effort was initiated by the LSI Scientific Advisory Board and Leadership Council under the leadership of Roger Cone, Ph.D., Mary Sue Coleman Director of the Life Sciences Institute and Vice Provost for the Biosciences Initiative. Yukiko Yamashita, Ph.D., served as the first director of the MLSF program. The Michigan Postdoctoral Pioneer program effort was initiated by Pierre Coulombe, Ph.D., Department Chair of Cell & Developmental Biology with support from the Endowment for Basic Sciences in the Medical School.

Directors

Carole Parent, Ph.D., Director, Michigan Pioneer Fellows Program
Research Professor, U-M Life Sciences Institute; Raymond and Lynne Ruddon Professor of Cancer Biology and Pharmacology, U-M Medical School; Professor of Cell and Developmental Biology, U-M Medical School



Yatrik Shah, Ph.D., Co-Director, Michigan Pioneer Fellows Program
Horace W. Davenport Collegiate Professor of Physiology, U-M Medical School; Professor of Molecular & Integrative Physiology and Internal Medicine, U-M Medical School

Ursula Jakob, Ph.D., Co-Director, Michigan Pioneer Fellows Program
Patricia S. Yaeger Collegiate Professor in Molecular, Cellular, and Developmental Biology, U-M College of Literature, Science, and the Arts; Professor of Biological Chemistry, U-M Medical School

Program Coordinators

Traci Carulli
Administrative Project Coordinator,
U-M Life Sciences Institute

Jacqueline Popma, Ph.D.
Graduate Student & Postdoc Coordinator,
Department of Cell & Developmental Biology,
U-M Medical School

Pioneer Review Committee

Faculty Reviewers
Julie Biteen, Ph.D. Janine Maddock Collegiate Professor of Chemistry and Biophysics, Professor of Chemistry and Professor of Biophysics, College of Literature, Science, and the Arts
Vernon Carruthers, Ph.D. Professor of Microbiology and Immunology, Medical School
Sriram Chandrasekaran, Ph.D. Associate Professor of Biomedical Engineering, Medical School and College of Engineering
Daniel Goldman, Ph.D. Bernard W Agranoff Legacy Professor of Neuroscience, Professor of Biological Chemistry and Research Professor, Michigan Neuroscience Institute, Medical School
Sundeep Kalantry, Ph.D. Professor of Human Genetics, Medical School
Jiandie Lin, Ph.D. Bradley M Patten Collegiate Professor in the Life Sciences, Professor of Cell and Developmental Biology, Medical School and Research Professor, Life Sciences Institute
Arvind Rao, Ph.D. Professor of Computational Medicine and Bioinformatics, Professor of Radiation Oncology, Medical School and Professor of Biostatistics, School of Public Health
Wenjing Wang, Ph.D. Isabella Karle Collegiate Professor in the Life Sciences, Research Associate Professor, Life Sciences Institute and Associate Professor of Chemistry, College of Literature, Science, and the Arts
Lois Weisman, Ph.D. Sarah Winans Newman Collegiate Professor in the Life Sciences, Professor of Cell and Developmental Biology, Medical School and Research Professor, Life Sciences Institute
Pioneer Directors
Carole Parent, Ph.D.
Yatrik Shah, Ph.D.
Ursula Jakob, Ph.D.

Current Fellows

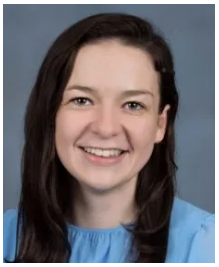
2025

In the Medical School's Department of Internal Medicine Division of Hematology and Oncology, **Reese Aitken, M.D., Ph.D.**, is investigating the role of transcription factor EB (TFEB) in CD8+ T cell fate and function with the long-term goal of optimizing T cell-based therapies for patients with lymphomas and other malignancies. Aitken completed her M.D./Ph.D. training at the University of Texas-Houston and the MD Anderson Cancer Center, with a focus on immunology.
Mentor: Shannon Carty

In the School of Dentistry's Department of Periodontics and Oral Medicine, **Rumela Bose Banerjee, Ph.D.**, is exploring novel molecular regulators of hematopoietic stem cells (HSC) with a broader aim towards improving the current bone-marrow transplantation procedures by utilizing molecular biology techniques and transplants in mouse models to decipher transcriptional and post-transcriptional regulators of GPRASP2, one of the negative regulators of HSC function. Bose Banerjee received her Ph.D. from the CSIR-Indian Institute of Chemical Biology (Jadavpur University).
Mentor: Antonio Morales-Hernandez

In the U-M Department of Biomedical Engineering, **Sean Carey, Ph.D.**, will focus on using changes in the foreign body response to implants to monitor progression and treatment of autoimmunity. Carey received his Ph.D. in bioengineering from the University of Maryland, College Park.
Mentor: Lonnie Shea

In the Medical School's Department of Pathology, **Sanjana Eyunni, Ph.D.**, will focus on uncovering how FOXA1, a lineage-specific pioneer transcription factor, reprograms the chromatin and metabolic state of a prostate cell to drive tumorigenesis. Eyunni received her Ph.D. in molecular and cellular pathology from U-M.
Mentors: Abhijit Parolia and Costas Lyssiotis



In the Medical School's Department of Pharmacology, **Melody Iacino, Ph.D.**, will investigate the mechanisms underlying insulin's role in regulating brain excitatory transmission in healthy weight and obese states with a goal of understanding the reward-associated alterations that contribute to obesity. Iacino received her Ph.D. in integrative physiology and pharmacology from Wake Forest University.
Mentor: Carrie Ferrario

In the Medical School's Department of Molecular and Integrative Physiology, **Hyunwoo Kim, Ph.D.**, will develop multiplexed and expansion microscopy-based technologies to integrate spatial proteomics with transcriptomics, aiming to reveal nanoscale RNA–protein relationships underlying cellular aging and disease mechanisms. Kim received his Ph.D. in materials science and engineering from the Korea Advanced Institute of Science and Technology (KAIST).
Mentor: Jun Hee Lee

Current Fellows

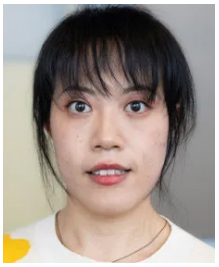
2025

In the Medical School's Department of Biological Chemistry, **Jeffrey Knupp, Ph.D.,** will use high-throughput screening to study mechanisms of quality control of proteins that traffic through the secretory pathway. Knupp received his Ph.D. in cellular and molecular biology from U-M.
Mentor: Ryan Baldridge

In the Medical School's Department of Microbiology and Immunology, **Ajay Larkin, Ph.D.**, will study gene essentiality, regulation, and high-frequency promiscuous gene incorporation in the emerging fungal pathogen, Candida auris. Larkin received his Ph.D. in molecular and cell biology from Brandeis University in Waltham, Massachusetts.
Mentor: Teresa O'Meara

In the College of Literature, Science, and the Arts Department of Molecular, Cellular, and Developmental Biology, **Rishi Mishra, Ph.D.**, will investigate how dynein, a motor protein associated with microtubules, moves toward the plus-end of the microtubule, which is essential for cargo transport, cell division, and directional cell migration. Mishra received his Ph.D. in biochemistry and structural biology from the Indian Institute of Science, Bengaluru, India.
Mentors: Morgan DeSantis and Michael Cianfrocco

In the College of Literature, Science, and the Arts Department of Molecular, Cellular, and Developmental Biology, **Catherine Redmond, Ph.D.**, will use the African clawed frog Xenopus laevis to study how keratin intermediate filaments cooperate with cell-cell junctions during developmental and tumorigenic fate decisions. Redmond received her Ph.D. in cancer biology from U-M.
Mentor: Ann Miller



In the Medical School's Department of Internal Medicine Division of Rheumatology, **Yiran Shen, Ph.D.**, will conduct multi-omics analyses of antigen-specific B cells and integrate circulating antibody functional assays to identify predictive signatures of pathogenic B cells in antiphospholipid syndrome. Shen received her Ph.D. immunology and microbiology from the University of Florida.
Mentor: Jason Knight

In a project that spans the Medical School's Department of Cell and Developmental Biology and the Life Sciences Institute, **Jordyn Van Portfliet, Ph.D.**, will utilize three-dimensional organoid models, high-resolution imaging, and multi-omic approaches to explore the coordinated functions of keratins 16 and 17 in regulating keratinocyte-mediated neutrophil recruitment to sites of inflammation. Van Portfliet received her Ph.D. at Texas A&M University.
Mentors: Pierre Coulombe and Carole Parent

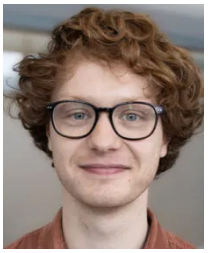
Current Fellows

2024

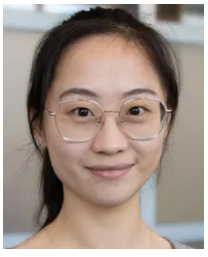
In the U-M Department of Biomedical Engineering, **Emmanouil Agrafiotis, Ph.D.**, plans to identify shared signaling pathways driving myofibroblast activation and cardiac fibrosis post-myocardial infarction using inducible cardiomyocyte apoptosis in human and mouse models, exploring heterocellular communication and fibrotic responses through genetic switches, marker analysis, and single-cell transcriptomics. Agrafiotis received his Ph.D. in biomedical engineering from the Graz University of Technology, Austria.
Mentor: Brendon Baker

In the Medical School's Department of Human Genetics, **Ritvija Agrawal, Ph.D.**, will investigate the unique mechanisms through which protamine proteins influence sperm chromatin structure and early embryonic development, thereby enhancing our understanding of the biological basis of various types of infertility and embryonic failure. Agrawal received her Ph.D. in molecular, cellular and developmental biology from U-M.
Mentor: Sue Hammoud

In the Medical School's Department of Molecular and Integrative Physiology, **Prarthana Dalal, M.D., Ph.D.**, will explore how hypoxic stress alters endothelial cell metabolic crosstalk with cancer cells and immune cells in the tumor microenvironment. Dalal completed her M.D./Ph.D. training at Northwestern University, focusing on vascular biology, specifically leukocyte transendothelial migration.
Mentor: Yatrik Shah



In the College of Literature, Science, and the Arts Department of Physics, **Daniel Duffy, Ph.D.**, will research the mechanisms by which leaves develop their distinctive shapes during growth. Duffy received his Ph.D. in engineering from the University of Cambridge.
Mentor: Suraj Shankar



In the Medical School's Department of Microbiology and Immunology, **Jiawen Fu, Ph.D.**, will investigate how *Toxoplasma gondii* delivers its effector proteins to host cells and plans to identify novel parasite proteins that mediate effector protein trafficking. Fu received her Ph.D. from the Harbin Veterinary Research Institute, Chinese Academy of Agricultural Sciences.
Mentor: Yifan Wang

Current Fellows

2024

In the College of Literature, Science, and the Arts Department of Psychology, **Arpit Kumar Pradhan, Ph.D.**, is working to understand the neural mechanisms underlying sound salience processing during sleep using electrophysiological and optical recordings. Pradhan received his Ph.D. in systemic neuroscience from Ludwig Maximilian University of Munich, Germany.
Mentor: Ada Eban-Rothschild

In the Medical School's Department of Internal Medicine Division of Metabolism, Endocrinology and Diabetes, **Frederike Sass, Ph.D.**, will extend her previous work in the field of metabolic diseases into the central nervous system (CNS) by researching the mechanisms by which NK2R signaling interacts with leptin action in the CNS. Sass received her Ph.D. in metabolic research from the University of Copenhagen, Denmark.
Mentor: Martin Myers

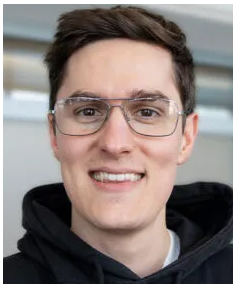
In the Life Sciences Institute, **Christabel Tan, Ph.D.**, is working to track and reprogram the epigenomes of closely related neuronal lineages in the fly brain to reveal the detailed genetic and epigenetic mechanisms of neural diversification. Tan received her Ph.D. in cell biology at Duke University.
Mentor: Tzumin Lee

In the Medical School's Department of Internal Medicine Division of Hospital Medicine, **Hitarthi Vyas, Ph.D.**, is focusing on creating the most comprehensive functional map of the Low-Density Lipoprotein Receptor (LDLR) locus using high-throughput CRISPR screens. Additionally, she seeks to develop a synthetic enhancer to improve LDLR activity with the ultimate goal of advancing therapeutic options for treating atherogenic cardiovascular disorders. Vyas received her Ph.D. from Maharaja Sayajirao University of Baroda, where she investigated circadian-regulated microRNAs and their role in the onset and progression of atherosclerosis.
Mentor: Brian Emmer

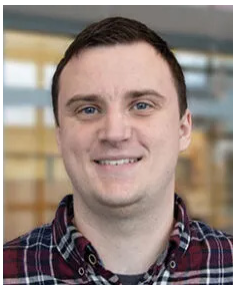
In the Medical School's Department of Psychiatry, **Hasini Weerathunge, Ph.D.**, is investigating the application of non-invasive neurostimulation techniques to improve the effectiveness of current behavioral approaches to stuttering treatment. Weerathunge received her Ph.D. in biomedical engineering from Boston University, where her work centered on utilizing auditory and somatosensory motor perturbations of voice and speech to develop neurocomputational models of speech motor control to better understand motor speech disorders.
Mentor: Soo-Eun Chang

Current Fellows

2023



In a project that spans the Medical School's Department of Microbiology and Immunology and the Life Sciences Institute, **Christophe-Sebastien Arnold, Ph.D.**, will use metabolomics, high-content imaging and machine learning to understand parasite-host interactions under nutritional stress. Arnold received a Ph.D. in virology, immunology and microbiology from the Université Grenoble-Alpes, France, before coming to U-M.
Mentors: Vern Carruthers and Carole Parent



In the Life Sciences Institute, **Brian Curtis, Ph.D.**, will apply protein engineering to overcome a bottleneck that hinders scientists' ability to efficiently develop biologically important natural product analogues. Curtis comes to the LSI from Cornell University, where he received a Ph.D. in chemistry and chemical biology.
Mentor: David Sherman

Fabio Gómez Cano, Ph.D., received a Ph.D. in biochemistry and molecular biology from Michigan State University. He joined the College of Literature, Science, and the Arts Department of Molecular, Cellular, and Developmental Biology, where he intends to unravel the intricate mechanisms through which living organisms respond to stress by studying the co-evolution of cis-regulatory regions and environmental stress.
Mentor: Alexandre Marand

In the Medical School's Department of Ophthalmology and Visual Sciences, **John Han, Ph.D.**, will explore the role of lipid droplets and mitochondrial metabolism in lipoprotein particle formation and secretion in age-related macular degeneration. Han received his Ph.D. in cell biology and regenerative medicine from Thomas Jefferson University in Philadelphia.
Mentor: Jason Miller

Working across the College of Literature, Science, and the Arts departments of Biophysics and Ecology and Evolutionary Biology, and the Medical School's Department of Internal Medicine, **Jacob Moran, Ph.D.**, will investigate how bacterial communities coordinate across different length and time scales to resist antibiotic treatments. Moran comes to U-M from Washington University in St. Louis, where he received a Ph.D. in physics.
Mentors: Luis Zaman, Suraj Shankar, and Robert Woods

Current Fellows

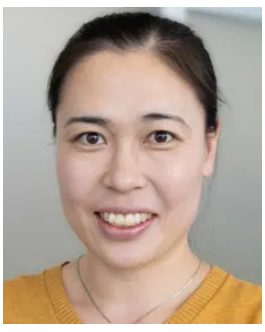
2023

In the Medical School's Department of Pathology, **Siva Kumar Natarajan, Ph.D.**, will build on his graduate work by exploring how the crosstalk between tumor cells and immune cells contributes to aggressive forms of brain cancer. Natarajan received his Ph.D. in molecular and cellular pathology from U-M, where he identified metabolic vulnerabilities in pediatric brain cancers to develop new therapies.
Mentors: Sriram Venneti and Costas Lyssiotis

Morgan Pimm, Ph.D., has joined the Medical School's Department of Cell and Developmental Biology, where she will study how one class of cytoskeletal filaments, known as microtubules, are regulated to promote directed cell migration, which is essential for tissue formation, immune responses and wound healing. Pimm received a Ph.D. in biochemistry and molecular biology from the State University of New York Upstate Medical University.
Mentor: Kristen Verhey

In the Life Sciences Institute, **Jingcheng Wang, Ph.D.**, is characterizing protein receptors that facilitate the movement of specific proteins (cargos) along the secretory pathway to the surface or outside of the cells, with a particular interest in the mechanisms that enable receptors to recognize their corresponding cargos. Before coming to U-M, Wang completed his graduate studies at the University of Texas Southwestern Medical Center.
Mentor: David Ginsburg

In the Medical School's Department of Molecular and Integrative Physiology, **Kristina Weaver, Ph.D.**, plans to establish new animal models to study how environmental changes, such as touch, can reprogram neural states in the brain and impact aging. Weaver received her Ph.D. in molecular and integrative physiology from U-M.
Mentors: Scott Pletcher and Megan Killian



In the Medical School's Department of Microbiology and Immunology, **Guolei Zhao, Ph.D.**, is investigating the mechanisms that drive skin colonization in *Candida auris*, which can cause life-threatening infections. Prior to joining U-M, Zhao received her Ph.D. in biological sciences from the State University of New York-Buffalo.
Mentor: Teresa O'Meara

Current Fellows

2022

From sugars and lipids to metals and gases, **Jutta Diessl, Ph.D.**, studies cellular biology at the intersection of molecular biology and bioinorganic chemistry. During her graduate studies, Diessl investigated glucolipotoxicity in yeast (M.Sc., University of Graz, Austria) and dysregulated calcium and manganese homeostasis in yeast and flies (Ph.D., Stockholm University, Sweden). In the U-M Medical School's Department of Biological Chemistry, Diessl now elucidates the crosstalk of hydrogen sulfide and copper metabolism and its impact on mitochondrial bioenergetics and metabolism in mammalian cell culture and mice.
Mentor: Ruma Banerjee

In the College of Literature, Science, and the Arts Department of Chemistry, **Luis Ortiz-Rodríguez, Ph.D.**, is developing next-generation single-molecule microscopy methods for measuring subcellular interactions in living microbial cells. Ortiz-Rodríguez comes from Luquillo, Puerto Rico and graduated with his B.S. in biology from University of Puerto Rico-Humacao Campus. He earned a Ph.D. in physical chemistry at Case Western Reserve University in Cleveland, Ohio, where he scrutinized the excited state dynamics and electronic relaxation pathways of thionated heavy-atom-free photosensitizers for photodynamic therapy applications.
Mentor: Julie Biteen

Alumni

MLSF - Michigan Life Sciences Fellow
MP3 - Michigan Postdoctoral Pioneer Fellow
MPF - Michigan Pioneer Fellow

Farzan Beroz (MLSF '18) | AI/ML Data Scientist, T2S Solutions

Joshua MacCready (MLSF '18) | Research Scientist, USDA

Brittany Morgan (MLSF '18) | Assistant Professor, University of Notre Dame

Aaron Morris (MLSF '18) | Assistant Professor, University of Michigan

Jennifer Yeung (MLSF '18) | Research Fellow, Cincinnati Children's Hospital Medical Center

Krista Armbruster (MLSF ' 19) | Research Lab Specialist, University of Michigan

Jacob Berv (MLSF '19) | Schmidt AI in Science Fellow, University of Michigan

Laura Kirby (MLSF '19) | Bioinformatics Scientist, Bio-Rad Laboratories

Yilai Li (MLSF '19) | Research Scientist, ByteDance

Mohammad Siddiq (MLSF '19) | Assistant Professor, University of Utah

Kyoung Jo (MP3 '19) | Research Scientist, Nationwide Children's Hospital

Zeribe Nwosu (MP3 '19) | Assistant Professor, Cornell University

Michael Kalyuzhny (MLSF '20) | Principal Investigator, Hebrew University of Jerusalem

Einar Olafsson (MLSF '20) | Research Investigator, University of Michigan

Pilar Rivero-Rios (MLSF '20) | Research Investigator, University of Michigan

Catherine Scull (MLSF '20) | Scientist, Servier Pharmaceuticals

Carolyn Walsh (MLSF '20) | Principal Scientific Communications Specialist, Med Communications

Mingmin Zhang (MLSF '20) | Postdoctoral Fellow, UCLA

Alex Knights (MP3 '20) | Assistant Professor, Washington University in St. Louis

David Hanna (MP3 '20) | Research Investigator, University of Michigan

Samantha Hodges (MP3 ' 20) | Senior Medical Writer, AbbVie

Amanda Erwin (MP3 '21) | Assistant Professor, Eastern Michigan University (August 2026 start)

Mike McFadden (MP3 '21) | Research Fellow, University of Michigan

Helen Rich (MP3 '21) | Scientist, Cerberus Therapeutics

Mónica Rivas Morales (MLSF '22) | Chemist

Luis Ortiz-Rodríguez (MLSF '22) | Assistant Professor, University of Maryland (August 2026 start)

Dominik Awad (MP3 '22) | Research Fellow, University of Michigan

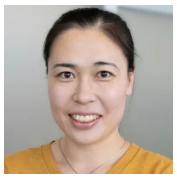
Ashley Calder (MP3 '22) | Research Fellow, University of Michigan

Jason Witek (MP3 '22) | Assistant Professor, University of Washington (June 2026 start)

Merci Best (MPF '23) | Postdoctoral Fellow, Boston University School of Medicine

Maurinne Bonnet (MPF '23) | Research Fellow, University of Michigan

Pioneer Fellows Talks



Guolei Zhao, Ph.D., 2023 cohort
Department of Microbiology and Immunology
Mentor: Teresa O'Meara, Ph.D.
Email: guoleizh@umich.edu

A novel anti-colonization strategy: targeting Candidozyma auris adhesin with AI-designed miniproteins

Candidozyma (Candida) auris is an emerging fungal pathogen that causes life-threatening outbreaks in hospitals and skilled nursing facilities worldwide. A defining feature of C. auris is its ability to persist on human skin, creating a reservoir for transmission and leading to contamination of medical devices and invasive infections. Nearly 90% of C. auris isolates are resistant to at least one class of antifungals and pan-resistant untreatable infections have already been seen in clinics. Therefore, there is an urgent need to identify novel treatment strategies that prevent C. auris colonization and infection. Physical attachment of fungal cells to surfaces is the critical initial step of both colonization and biofilm formation, resulting in robust environmental persistence and resistance to decontamination. For fungal pathogens, this attachment is mediated by cell surface-exposed proteins known as adhesins. In recent work, we identified the adhesin Als4112 as a major determinant of C. auris skin adhesion. Als4112 was required for efficient keratinocyte attachment in vitro across all four major clades of C. auris and contributed to skin colonization in vivo. Based on these findings, we hypothesized that directly targeting Als4112-mediated adhesion would reduce C. auris skin colonization. To test this, we leveraged AI-driven de novo designed miniprotein binders to target the cell surface adhesin Als4112. We evaluated whether Als4112-targeting miniproteins can bind to C. auris cells and disrupt fungal attachment to host epithelial cells. This work aims to establish a novel anti-adhesion strategy to limit skin colonization and reduce the transmission reservoir of multidrug-resistant C. auris.

Kristy Weaver, Ph.D., 2023 cohort
Department of Molecular and Integrative Physiology
Mentors: Scott Pletcher, Ph.D., and Megan Killian, Ph.D.
Email: kjweaver@umich.edu

Mechanosensory experience as a context-dependent regulator of brain states and longevity

Interactions between animals and their environments influence processes in the brain that shape neural states like mood, motivation, and arousal. These plastic states direct behavior and causally modulate how animals age. Molecular explanations for how environmental experiences are converted into lasting brain changes are in most cases unknown, and this lack of understanding has prevented our ability to harness lifestyle interventions for therapeutic potential. To define molecular principles that form the foundation for neural state encoding we focus on touch, a fundamental sense that influences emotion-related brain circuits and neuromodulators such as serotonin and dopamine in the brain. Using traditional fly genetics and optogenetics, a suite of behavioral tracking tools, and RNA-sequencing of fly brains, we have found that mechanosensation has profound and multifaceted effects on a fly's neural state, lifespan, and neuronal gene expression that are highly dependent on social context. Fruit flies associate mechanosensation with a positive or negative valence (attractive or aversive) that can be measured by changes in behavior; these responses are modulated by age, by previous mechanosensory experiences, and they promote unique gene expression signatures in the brain. Mechanosensory experiences also modulate lifespan, indicating that touch may dynamically shape the brain to influence aging. Future work will build on this to test the hypothesis that touch influences aging through shaping neural states that emerge from durable epigenetic mechanisms in individual neurons. This work will establish frameworks that can be leveraged to inform the development of environmental interventions and public policies that promote healthy aging.

Pioneer Fellows Talks

Jingcheng Wang, Ph.D., 2023 cohort
Life Sciences Institute
Mentor: David Ginsburg, M.D.
Email: jwangpro@umich.edu

Deep mutational scanning to define cargo recognition motifs within the cargo receptor SURF4

Most secreted proteins are transported from ER to Golgi along the secretory pathway mediated by Coat Protein Complex II (COPII), which is comprised of a family of cytosolic proteins. The COPII complex mediates the transport of transmembrane protein cargos via interaction at the cytosolic side, while many cargos in the ER lumen are recruited into COPII-coated vesicles/tubules via interaction with transmembrane cargo receptors that recognize the cargos by their luminal domains. Previous studies by our lab and others demonstrated SURF4 as a cargo receptor mediating the secretion of PCSK9, which regulates LDL receptor levels and plasma cholesterol. We are applying a deep mutational scanning (DMS) approach using a variant library spanning the coding sequences of SURF4 to characterize the key sites/domains required for the interaction with, and selection of, specific cargoes. To ensure that each cell expresses only one variant in the library, the endogenous SURF4 gene is knocked out, and a single copy of Bxb1 integration site is transduced into the genome for the singular incorporation of the library DNA, mediated by the Bxb1 recombinase. The function of SURF4 variants is determined by the intracellular retention of fluorescently tagged PCSK9, a cargo protein mediated by SURF4. The SURF4 variants with the best and worst secretion efficiency are enriched by fluorescence-activated cell sorting followed by deep sequencing. We have finished preliminary data analysis of the first DMS experiments. Further validations are underway to provide a solid foundation for further studies.

Morgan Pimm, Ph.D., 2023 cohort
Department of Cell and Developmental Biology
Mentor: Kristen Verhey, Ph.D.
Email: mpimm@umich.edu

Jupiter 2 (JPT2) is a microtubule associated protein that compensates for loss of EB

Microtubules are polar cytoskeletal polymers composed of α/β-tubulin subunits that assemble in a head-to-tail fashion to form protofilaments which then laterally associate to form tubes. Tubulin subunits are added to growing plus ends in an expanded GTP-bound state whereas tubulin subunits within the microtubule lattice are primarily in a compacted GDP-bound state. Emerging data in the field indicate that microtubule-associated proteins (MAPs) can locally expand or compact the lattice, which can regulate the formation of tubulin post-translational modifications (PTMs). End-binding (EB) proteins recognize and are sensitive to the nucleotide state at growing microtubule ends and promote lattice compaction. Although much has been done to understand the role of EBs at plus ends, the roles of EBs in regulating the tubulin code are largely unresolved. To address this, we utilized two EB knockout (KO) systems. We found that the levels of microtubule detyrosination are significantly increased in cells with short-term loss of EBs but are unaffected in long-term, stable EB KOs. We hypothesized that cells compensate for EB loss by altering the levels of lattice-regulating MAPs. Using quantitative mass spectrometry, we identified JPT2 as a protein that is upregulated in long-term EB KO cells. We show that JPT2 knockdown in long-term KO cells increases detyrosination while overexpression in short-term EB KO cells reduces detyrosination. In cells, JPT2 is also rapidly evicted from the lattice upon Taxol-induced lattice expansion. Combined, these results reveal JPT2 as a MAP sensitive to lattice conformation and provide new insights into how plus end proteins regulate the tubulin code.

Pioneer Fellows Talks

Siva Kumar Natarajan, Ph.D., 2023 cohort
Department of Pathology
Mentors: Sriram Venneti, M.D., Ph.D., and Costas Lyssiotis, Ph.D.
Email: sivakn@umich.edu

ZFTA-RELA ependymomas produce macrophage-associated itaconate as an oncometabolite to epigenetically sustain pathogenic fusion expression

ZFTA-RELA ependymomas are malignant brain tumors that are frequently lethal. They are defined by fusions formed between the putative chromatin remodeler ZFTA and the NFκB- mediator-RELA. Through a comprehensive metabolic screen, we identified that ZFTA-RELA cells produced itaconate, a TCA-cycle related metabolite. Itaconate is key macrophage-associated immunomodulator metabolite. However, itaconate production by tumor cells and its tumor-intrinsic role are not well-established. Itaconate is synthesized by the enzyme Aconitate Decarboxylase-1 (ACOD1) and ZFTA-RELA upregulated ACOD1 in an NFκB-dependent manner. Additionally, itaconate production enabled an integrated metabolic/epigenetic feed-forward system that maintained pathogenic ZFTA-RELA fusion expression through epigenetic activation. To supply the metabolic fuel needed to generate itaconate, ZFTA-RELA tumors epigenetically activated PI3K/mTOR signaling to enhance glutaminolysis, which provided the carbons necessary for itaconate synthesis. Consequently, antagonizing glutamine metabolism lowered pathogenic ZFTA-RELA levels and was potently therapeutic in multiple in vivo models. Finally, combining glutamine antagonism with PI3K/mTOR inhibition abrogated spinal metastasis. Our data demonstrate that ZFTA-RELA ependymomas subvert a macrophage-like itaconate metabolic pathway to epigenetically maintain expression of the ZFTA-RELA fusion driver, implicating itaconate as an oncometabolite. Taken together, our results position itaconate upregulation as a previously unappreciated driver of ZFTA-RELA ependymomas. This study, therefore, has implications for future drug development for children with this devastating brain tumor and will further our understanding of oncometabolites as a novel class of therapeutic dependencies in cancers.

Jacob Moran, Ph.D., 2023 cohort
Departments of Biophysics and Ecology & Evolutionary Biology
Mentors: Luis Zaman, Ph.D., Suraj Shankar, Ph.D., and Robert Woods, M.D., Ph.D.
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Minding the gap: bridging multiscale structure across interacting bacterial colonies

A bacterial colony rarely exists in isolation – in natural habitats, colonies interact with one another to form complex communities that are organized across length and time scales. With eco-evolutionary feedback within and between colonies linking these scales, spatiotemporal structure at one level can influence that of another. Despite many recent insights into ecological and evolutionary dynamics within a single colony, the interplay between the single- and multi-colony scales remains largely unexplored. As a step towards bridging this disconnect, we develop a high-throughput platform that combines open-source robotics and automated scanner imaging to track population dynamics across spatially extended networks of colonies. A common structural feature we observe at the multi-colony scale is the formation of a cell-free gap region between isogenic colonies. Numerous studies observe similar patterns of “sibling rivalry” behavior for several species, with only a few cases resolving the underlying mechanism. Here, we ask: what are the minimal ingredients shaping this multi-colony structure? By combining modeling and experiments, we show that both resource competition and direct growth inhibition control colony morphology and expansion of interacting colonies. We identify distinct regimes of gap formation, relating intra- and inter-colony spatial patterns to ecological interactions mediated at the cellular scale. Together, our results suggest that antagonism, even between sibling populations through self-inhibition, is likely a common behavior of bacteria that could have important functional consequences in terms of antibiotic resistance.

Pioneer Fellows Talks

John Han, Ph.D., 2023 cohort
Department of Ophthalmology and Visual Sciences
Mentor: Jason Miller, M.D., Ph.D.
Email: hanjy@umich.edu

Lipid Droplets in the Retinal Pigment Epithelium Have a Significant Triacylglyceride Composition
The retinal pigment epithelium (RPE) faces an enormous lipid load from both the apical photoreceptors and basal capillaries. Lipid loads are degraded and released as free fatty acids and unesterified cholesterol (UC). It is not known how the RPE handles the different types of lipids, but ultimately, it is thought that lipids are either degraded through fatty acid metabolism or secreted out of the cell. Age-related Macular Degeneration (AMD) is associated with mitochondrial deficits that reduce β-oxidation and increase lipid secretion, leading to the accumulation of pathologic extracellular lipid-rich drusen. Similar to other tissues, in the RPE, lipids are stored in lipid droplets (LDs), an organelle formed within the bilayer of the endoplasmic reticulum (ER). LDs regulate cytosolic lipid levels by forming and storing lipids as esterified neutral lipids, such as triglycerides (TAG) and cholesterol esters (CE), and releasing unesterified lipids to other organelles, such as peroxisomes and mitochondria, for β-oxidation. It is currently unknown what the mechanisms of RPE LD formation are, or what role LD plays in RPE lipid metabolism. Using primary human RPE cultures, we focused on how the LDs are formed by inhibiting the enzymes responsible for the synthesis of TAGs (Diacylglycerol O-acyltransferase 1 and 2, DGAT1 and 2) and CE (Acetyl-CoA Acetyltransferase 1 and 2, ACAT1 and 2), and whether it alters RPE fatty acid metabolism. We've found that the majority of fatty acids are stored in RPE LDs as TAGs and inhibition of LD formation does not alter RPE fatty acid metabolism.

Fabio Gómez Cano, Ph.D., 2023 cohort
Department of Molecular, Cellular, and Developmental Biology
Mentor: Alexandre Marand, Ph.D.
Email: gomezcan@umich.edu

Defining the regulatory grammar of stress responses in maize
How organisms respond to environmental cues is a dynamic process that varies as a function of genetic background, developmental stage, and cell type. However, our comprehension of how the gene regulatory components contribute to cellular responses remains limited. Here, we analyzed chromatin and expression changes at the single-cell level in seedlings of the 25 maize founder lines of the nested association mapping (NAM) panel. We created maps of accessible chromatin regions (ACRs) and expression profiles for around 1.5 M nuclei, averaging 30,000 nuclei per genotype. In total, combining all conditions, we found around 0.55 million ACRs, representing about 25,000 ACRs for each genotype-condition combination. Our analyses highlighted specific chromatin changes in cells under cold, hypoxia, and heat stress, revealing new chromatin changes that occur in response to various environmental factors. We also identify chromatin and expression quantitative trait loci (caQTL and eQTL), which allows us to identify variations in cis-regulatory elements (CREs) which are part of the regulatory grammar of stress response in maize. By combining TF footprinting with expression profiles, we develop cell-specific gene regulatory networks (GRNs) for each stress condition. Our findings bring us closer to understanding the complex ways maize plants cope with stress, marking a significant step toward understanding the mechanisms of stress tolerance in maize.

Pioneer Fellows Talks

Brian Curtis, Ph.D., 2023 cohort
Life Sciences Institute
Mentor: David Sherman, Ph.D.
Email: bjosephc@umich.edu

Development of Next Generation HIV-Nef Inhibitors

The human immunodeficiency virus (HIV)-encoded accessory protein Nef promotes viral immune evasion by mis-trafficking major histocompatibility complex type I (MHC-I), protecting HIV-infected cells from immune recognition. Previous data suggests that sub-nanomolar concentrations of concanamycin A (CMA), a known vacuolar-type ATPase (V-ATPase) inhibitor, reverses Nef-dependent downmodulate of MHC-I with limited toxicity to uninfected cells. We recently reported that semi-synthetically generated 3',9-diacetylated analogs of CMA and its counterpart, concanamycin B (CMB), maintain sub-nanomolar potency against Nef, while showing improvement in reducing toxicity respective to parental CMA/CMB. To further improve activity of these compounds, we are currently developing next-generation CMA analogs that incorporate oxygen-containing heterocycles, which are found in many FDA approved drugs. Current lead analogs that contain oxabicyclo, oxetane, and tetrahydropyranyl groups display similar Nef inhibitory activity after 24 hours to parental CMA, though with significantly lower cellular toxicity after 72 hours of treatment. A potent compound with low toxicity could prove to be a viable medicinal candidate to use in combination with latency reversing agents to eradicate HIV-infected reservoirs.

Christophe-Sebastien Arnold, Ph.D., 2023 cohort
Department of Microbiology & Immunology and Life Sciences Institute
Mentors: Vernon Carruthers , Ph.D., and Carole Parent, Ph.D.
Email: csarnold@umich.edu

Toxoplasma gondii induces host endoplasmic reticulum bulbs to facilitate lipid acquisition under nutrient stress

Intracellular pathogens must acquire essential nutrients from their host cells to sustain replication, yet the mechanisms by which they remodel host organelles for this purpose remain incompletely understood. Here, we report that Toxoplasma gondii infection, when combined with nutrient stress, induces the formation of large endoplasmic reticulum (ER) bulb structures in host cells. These ER bulbs arise preferentially under low-serum conditions and scale with parasite burden per vacuole. We show that ER bulb formation depends on activation of the IRE1α-XBP1 branch of the unfolded protein response (UPR), as pharmacological inhibition with 4μ8C and genetic knockdown of IRE1α both significantly reduce bulb incidence. Spliced XBP1 (XBP1s) upregulates lipid biosynthetic genes including DGAT2 and autophagy-related genes under these conditions. Using BODIPY C12 lipid tracers in RAMP4-GFP-expressing cells, we demonstrate that ER bulbs are enriched in lipid droplets and that parasitophorous vacuoles associated with ER bulbs accumulate significantly more host-derived lipids than those without bulbs. Our findings reveal a previously unrecognized strategy whereby T. gondii co-opts the host ER stress response to generate specialized lipid-rich ER structures that serve as platforms for parasite nutrient acquisition.

Keynote Address

Joseph C. Wu, M.D., Ph.D.
Professor & Director, Stanford Cardiovascular Institute, Stanford University

New Approach Methodologies (NAMs) to Accelerate Clinical Trials in a Dish (CTiD)

Drug discovery and development continue to face significant challenges, with over 90% of candidate drugs failing in clinical trials. These efficacy failures are primarily due to inherent species-specific differences, fundamental biological variances between model organisms and humans, and the limitations of existing models to accurately reflect the complexity of human disease and treatment responses. In this discussion, I will explore how the NIH and FDA are advocating for new alternative methodologies (NAMs) to reduce or replace animal testing. I will highlight recent advancements in technologies such as stem cells, organoids, and microphysiological systems (MPS), along with the roles of clinical genomics and AI/ML. Additionally, I will examine how these platforms can collaboratively enhance our understanding of rare orphan diseases, facilitate drug discovery, support precision medicine, and enable clinical trials in a dish (CTiD).

About the Speaker: Joseph C. Wu, M.D., Ph.D. is Director of Stanford Cardiovascular Institute and Simon H. Stertzer, M.D., Professor of Medicine and Radiology at Stanford University. Dr. Wu received his M.D. from Yale University and PhD (Molecular & Medical Pharmacology) at University of California, Los Angeles. He is board certified in cardiovascular medicine.

His lab works on genomics, stem cells/organoids, AI/ML, and drug discovery. The main goals are to (i) understand basic disease mechanisms, (ii) implement precision medicine for patients, and (iii) accelerate drug discovery via “new alternative methodologies” (NAMs) and “clinical trial in a dish” (CTiD) concept. Dr. Wu has published >700 manuscripts with H-index of 147 on Google scholar. He is listed as top 0.1% of highly cited researchers by Web of Science for past 7 years (2018-2024).

Dr. Wu has received several awards, including the NIH Director’s New Innovator Award, NIH Roadmap Transformative Award, Presidential Early Career Award for Scientists and Engineers (PECASE) given out by President Obama at the White House, American Heart Association (AHA) Distinguished Scientist Award, AHA Merit Award, and Burroughs Wellcome Foundation Innovation in Regulatory Science Award. Dr. Wu serves on the FDA Cellular, Tissue, and Gene Therapies Advisory Committee. He is on the Board of the Keystone Symposia and American Heart Association. He is a past President of the American Heart Association (2023-2024).

Dr. Wu is an elected member or fellow of the American Society for Clinical Investigation (ASCI), Association of University Cardiologists (AUC), American Institute for Medical and Biological Engineering (AIMBE), American Association of Physicians (AAP), Academia Sinica (Taiwan), American Association for the Advancement of Science (AAAS), Asian American Academy of Science and Engineering (AAASE), National Academy of Inventors (NAI), and National Academy of Medicine (NAM).

Posters

1	**Emmanouil Agrafiotis** (Michigan Pioneer Fellow) Postdoctoral Fellow, Biomedical Engineering **Cardiac bilayer tissues modeling cardiomyocyte-mediated deactivation of myofibroblasts** Emmanouil Agrafiotis, Samuel J. DePalma, Gonzalo Anyosa, Jingyi Xia, Kathryn Kim, Adam S Helms, Brendon M. Baker
2	**Ritvija Agrawal** (Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Human Genetics **Protamine Sequence Evolution: Unraveling Its Role in Sperm Motility and Embryonic Viability** Ritvija Agrawal, Lindsay Moritz, Mashiat Rabbani, Saher Sue Hammoud
3	**Avery Allen** Undergraduate Student, Michigan Medicine/Radiology **A Novel Carbon-11 Radiosynthetic Platform for the Development of Asymmetric Guanidine Theranostic mIBG Analogs** Avery C. Allen, Allen F. Brooks, Jason A. Witek, Peter J. H. Scott, Xia Shao, David M. Raffel
4	**Avery Allen** Undergraduate Student, Michigan Medicine/Radiology **Microwave Mediated Functionalization of Indoles Using A DABCO-Meldrum's Acid Reagent** Avery C. Allen, Hyeyeon Kim, Dre Hubers, Jason A. Witek, Peter J. H. Scott
5	**Dominik Awad** (Michigan Pioneer Fellow Alum) Postdoctoral Fellow, Michigan Medicine/Molecular and Integrative Physiology **Mycobiome-derived metabolites impact the pancreatic tumor microenvironment** Dominik Awad, Ryan Hong, Li Zhang, Kwi Kim, Noah Nelson, Manoj Kumar, Sarah Bench, Carlos Espinoza, Peter Sajjakulnukit, Yaqing Zhang, Matt Perricone, Darby Agovino, Marina Pasca di Magliano, Alexander Muir, Yatrik Shah, Livia Eberlin, Thomas M. Schmidt, Donnele Daley, Costas A. Lyssiotis
6	**Rumela Bose Banerjee (**Michigan Pioneer Fellow) Postdoctoral Fellow, School of Dentistry **Identifying novel molecular regulators of hematopoietic stem cells as prospective therapeutic targets** Rumela Bose Banerjee, Geovana Lougon Moulin, Jaeyong Lee, Dewmi Rathanayake, Arya Joshi, Antonio Morales-Hernandez
7	**Anna Bryant** Graduate Student, Michigan Medicine/Pharmacology **Fentanyl Side-Chain Aromaticity Stabilizes hERG1 Block and Increases** Anna Bryant, Eric Jimenez-Vazquez, Abhilasha Jain, Saba Ghodrati, Jessica Anand, David Jones

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8	**Sean Carey** (Michigan Pioneer Fellow) Postdoctoral Fellow, Biomedical Engineering **Design of an Injectable Immunological Niche for Type 1 Diabetes Detection** Sean Carey, Kathryn Kang, Jyotirymoy Roy, Evlin Zhu, Lonnie Shea
9	**Shrabastee Chakraborty** Postdoctoral Fellow, Michigan Medicine/Cell and Developmental Biology **Spatiotemporal gating of period mRNA by P-bodies tunes circadian period** Shrabastee Chakraborty, David Brooks, Swathi Yadlapalli
10	**Jiexian Chen** Research Staff, Michigan Medicine/Pathology **Interventions that extend lifespan rewires glycolysis and amino acids catabolism in mice liver** Jiexian Chen, Estella Gan, Richard A. Miller, Gonzalo G. Garcia
11	**Jutta Diessl** (Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Biochemistry **Sulfide stress induces copper accumulation** Jutta Diessl, Joseph Roman, David A. Hanna, Roshan Kumar, Aaron Sue, Andrew Crawford, Romika Shokohi, Anya Parikh, Ajith Pattammattel, Kewei Zhao, Ajay Larkin, Yibo Fu, Maciek Antoniewicz, Amit Reddi, Kaushik Ragunathan, Ritimukta Sarangi, Tom O'Halloran, Martina Ralle, Ruma Banerjee
12	**Daniel Duffy** (Michigan Pioneer Fellow) Postdoctoral Fellow, LSA/Physics **Growth instabilities and edge patterning in an active solid** Daniel Duffy, Suraj Shankar
13	**Sanjana Eyunni (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Pathology **STAG2 loss amplifies EWS-FLI1-driven microsatellite enhancer activity promoting Ewing sarcoma aggressiveness** Sanjana Eyunni, Shih-Chun Chu, Mary L Guan, Michaela Louw, Eleanor Young, Sandra E. Carson, Jianhui Gong, Marcin Cieslik, Arul M. Chinnaiyan, Abhijit Parolia
14	**Nathan French** Graduate Student, Biomedical Engineering **Effects of Myosin-Specific Pharmacologics on Cardiomyocyte Mechanical Behavior** Nathan French, Sean Hansen, Alison Vander Roest

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15	**Jiawen Fu** (Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Microbiology & Immunology **Amino acid acquisition via Toxoplasma gondii transporter ApiAT6 determines parasite fitness across host environments** Jiawen Fu, Priscilla O. Gyan, Ariel K. Lindholm, Yao Gu, Lamba Omar Sangaré, Jeroen P. J. Saeij, Yifan Wang
16	**Louis Goldberg** Undergraduate Student, Michigan Medicine/Pharmacology **Investigating Regulatory Effects of hERG1NP on NaV1.5 Activity** Louis Goldberg, Abhilasha Jain, Eric Nahum Jimenez Vazquez, David Jones
17	**Jacob Hamaker** Undergraduate Student, Michigan Medicine/Cell and Developmental Biology **Jupiter 2 (JPT2) is a Microtubule Associated Protein that Compensates for Loss of EB** Morgan Pimm, Jacob Hamaker, Ryoma Ohi, Kristen Verhey
18	**Julia Han** Graduate Student, Biomedical Engineering **Patient Specific Modeling of Cardiac Tissue Remodeling After Alcohol Septal Ablation in Hypertrophic Cardiomyopathy** Julia Seungyeon Han, Anna Damlin, David Marlevi, Alison Vander Roest, David Nordsletten
19	**Jake Harte** Graduate Student, Michigan Medicine/Biological Chemistry **Uncovering the Substrate Selectivity and Metal Specificity of Legionella pneumophila Effector BCP** Jake Harte, Ash de Borchgrave, Jean-Marc Fontaine, Esme Lowry, Chimi Sherpa, Lake Shimer, Emily Xu, Ray Trievel
20	**Annie Hu** Undergraduate Student, Michigan Medicine/Internal Medicine **Investigating the Differential Utilization of Fatty Acids in JAK2 V617F Mutant Hematopoietic Stem and Progenitor Cells** Annie Hu, Timothy Liang, Ashlyn Johnson, Morgan Jones
21	**Melody Iacino (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Pharmacology **Basal enkephalin levels exhibit individual variability in the nucleus accumbens of obesity-susceptible versus -resistant rats** Melody Iacino, Abdallah Zeid, Grace Gleison, Robert Kennedy, Carrie Ferrario

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22	**Jemi Isaac** Undergraduate Student, LSA/Psychology **Adolescent Food Insecurity: Impact on Risky Decision-Making, Motivation for Reward, and Eating Behavior** Jemi Isaac, Lauren M. Raycraft, Carrie R Ferrario
23	**Erin Jenson** Graduate Student, Michigan Medicine/Cell & Developmental Biology **Identifying readers of glutamylation in the mitotic spindle** Erin Jenson, Kristen Verhey
24	**Hyunwoo Kim (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Molecular and Integrative Physiology **Nanoscale Visualization of Lysosomal Signaling Architecture via Expansion Microscopy (ExM)** Hyunwoo Kim, Ki Won Lee, Jun Hee Lee
25	**Jeff Knupp (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Biological Chemistry **High-throughput screening for mammalian ERAD degrons** Jeffrey Knupp, Ryan Baldridge
26	**Ajay Larkin (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Microbiology and Immunology **Establishing gene essentiality and gene incorporation in Candidozyma auris** Ajay Larkin*, Joseph J Hale*, Jackson R Rapala, Rebecca Hurto, Brynn Elson, Lydia Freddolino, Evan Snitkin, Teresa R O'Meara
27	**Frederick Lee** Graduate Student, Michigan Medicine/Pharmacology **The NLS Is Sufficient for Nuclear Trafficking of the hERG1 C-Terminal Fragment hERG1NP** Frederick Lee*, Matthew Goodrich, Pamela Ruzycki, Abhilasha Jain, David Jones
28	**Jialin Liu** Postdoctoral Fellow, LSI **Lineage-Guided Spatio-temporal Tracking of Drosophila Brain Development** Jialin Liu, Hui-Min Chen, Ching-Po Yang, Tomer Stern, Tzumin Lee
29	**Yihan Liu** Graduate Student, Michigan Medicine/Cancer Biology **Cooperative chromatin pioneering by TFAP2C-FOXA1 drives oncofetal reprogramming in prostate cancer** Yihan Liu, Eleanor Young, Honglin Zhong, Miloni Kinarivala, Qiuyang Zhang, Angela Zhang, Ruocheng Xu, Cameron Vasquez, Sanjana Eyunni, Arwen Frick-Cheng, Calvin Burns, Somnath Mahapatra, Rahul Mannan, Yuping Zhang, Arul Chinnaiyan, Melanie Ohi, Abhijit Parolia

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30	**Rishi Mishra (**Michigan Pioneer Fellow) Postdoctoral Fellow, LSA/MCDB **Elucidating the molecular and structural mechanism of Dynein +TIP tracking** Rishi Mishra, Morgan E. DeSantis
31	**Mari Park** Research Staff, Biomedical Engineering **ECM Density Mediates Cardiac Fibroblast Attachment and Cell Spread in Viscoelastic Hydrogels** Mari Park, Georgina Stephanie, Alison Vander Roest
32	**Arpit Kumar Pradhan (**Michigan Pioneer Fellow) Postdoctoral Fellow, LSA/Psychology **Understanding the neural mechanisms underlying sound salience processing during sleep** Arpit Kumar Pradhan, Maiya Atzmon, Ada Eban-Rothschild
33	**Dharma Rane** Postdoctoral Fellow, Michigan Medicine/Radiology **Pseudo Simplified Reference Tissue Model Evaluation for [18F]ASEM Quantification** Rane, Dharma; Davis Margaret T.; Wenn, Mike; Nabulsi, Nabeel; Huang, Henry; Hillmer, Ansel T.
34	**Visweswaran Ravikumar** Postdoctoral Fellow, Michigan Medicine/DCMB **Multi-Omic Profiling Clarifies Mechanisms of Treatment-Induced Lineage Plasticity in Prostate Cancer** Visweswaran Ravikumar, Faming Zhao, Ryan Rebernick, Anbarasu Kumaraswamy, Eva Rodansky, Joel Yates, Amina Tanweer, Aaron Udager, Arul Chinnaiyan, Marcin Ceislik, Zheng Xia, Arvind Rao, Joshi J. Alumkal
35	**Catherine Redmond (**Michigan Pioneer Fellow) Postdoctoral Fellow, LSA/Molecular, Cellular, and Developmental Biology **From Development to Tumorigenesis: Differential Keratin Expression in Xenopus laevis** Catherine J. Redmond, Olivia Tuckey, Ann L. Miller
36	**Frederike Sass (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Internal Medicine (MEND) **NK2Ra Targets a BMI-Linked Hindbrain Circuit** Frederike Sass, Jenny Brown, Artem Pavlovskyi, Zach Gerhart-Hines, Martin Myers

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37	**Yiran Shen (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Internal Medicine (Rheumatology) **Proteomics-Guided B-Cell Receptor Sequencing Uncovers Convergent Germline Frameworks Underlying Anti-β2GPI Autoantibody Production in Antiphospholipid Syndrome** Yiran Shen, Srilakshmi Yalavarthi, Cyrus Sarosh, Jacqueline A. Madison, Yu Zuo, Jason S. Knight
38	**Ryan Singer** Graduate Student, PCB/LSI **Engineering genetically encoded tools for spatiotemporal control of endogenous melanocortin-4 receptor** Ryan Singer, Jessi Rodriguez, Sydney Markel, Naima Dahir, Peng Li, Roger Cone, Wenjing Wang
39	**Nathalie Tsimhoni** Undergraduate Student, Michigan Medicine/Ophthalmology and Visual Sciences **Extracellular Lactate Regulates RPE Glucose Transport, but Is Not Necessary for Maintaining Health** Nathalie Tsimhoni*, John Y. Han, Qitao Zhang, James Hurley, Nancy Philp, Jason M. Miller
40	**Kinsey Van Deynze** Postdoctoral Fellow, Michigan Medicine/Neurology & Computational Medicine and Bioinformatics **Human transposable element derived STRs exhibit differential evolution and disease-associated instability** Kinsey Van Deynze, Peter Todd, Alan Boyle
41	**Cameron Vasquez** Graduate Student, Michigan Medicine/Pathology **Ewing sarcomas are sensitive to pharmacological inhibition of SWI/SNF chromatin remodeling activity** Cameron Vasquez, Michaela Louw, Sanjana Eyunni, Eleanor Young, Miloni Kiranivala, Qiuyang Zhang, Calvin Burns, Abhijit Parolia
42	**Praneet Voleti** Undergraduate Student, Michigan Medicine/Pharmacology **hERG1NP is trafficked to the nucleus as a multimeric protein** Praneet Voleti, Francisco Sanchez-Conde, Abhilasha Jain, Eric N. Jimenez-Vazquez, David K. Jones
43	**Hitarthi Vyas (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Internal Medicine (Hospital Medicine) **Systematic Characterization of the Low-Density Lipoprotein Receptor (LDLR) Noncoding Regulation** Hitarthi Vyas, Brian Emmer

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44	**Hasini Weerathunge (**Michigan Pioneer Fellow) Postdoctoral Fellow, Michigan Medicine/Psychiatry **Structure–Function Coupling in Adults Who Stutter: Evidence from Multimodal Connectivity Modeling** Hasini Weerathunge, Yanni Liu, Mike Angstadt, Jason Tourville , Lauren Keith, Soo-Eun Chang
45	**Johanna Werner** Postdoctoral Fellow, Michigan Medicine/Internal Medicine (MEND) **Targeting the Metabolic-Epigenetic Axis in Adrenocortical Carcinoma: Acetyl-CoA Flux Sustains Super-Enhancer-Driven Tumor Identity and Immune Evasion** Johanna Werner, Antonio M Lerario, Zeribe C Nwosu, Gary D Hammer
46	**Sumin Xu** Graduate Student, Michigan Medicine/Pharmacology **Investigating the Role of GPR97 in neutrophil function** Tyler Bernadyn, Frank Kwarcinski, Nichen Zhu, Xuhong Chen, Carole Parent, Greg Tall
47	**Michael Young** Graduate Student, Michigan Medicine/Pharmacology **Roles of Cardiomyocyte JAK1 in TAC-Induced Remodeling and IL-11–Mediated Left Ventricular Dysfunction** Michael Y. Young*, Arasakumar Subramani, Kobina Essandoh, Nikhil Sonthalia, James P. Teuber, Kay-Uwe Wagner, Matthew J. Brody
48	**Angela Zhang** Undergraduate Student, Michigan Medicine/Pathology **Simple Structural Modifications of an NSD2 Degrader Enable Selective Targeting of NSD2 or GSPT1** Angela Zhang, Yihan Liu, Weizhong Shen, Lianchao Liu, Abhijit Parolia, Zhen Wang, Arul M. Chinnaiyan, Ke Ding
49	**Stella Zhu** Research Staff, Michigan Medicine/Pharmacology **Palmitoylation of Rac1 is required for proper cardiac stress adaptation** Stella Zhu, James P. Teuber, Rachel E. Scissors, Arasakumar Subramani, Matthew J. Brody

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