

The Arizona Physiological Society

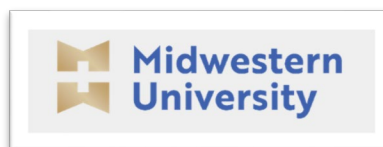


16th Annual Meeting October 27-28, 2023

Midwestern University

Glendale, Arizona

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We are extremely grateful for the institutional support we have received this year and in the past. Thank you so much for believing in our society's mission and providing the help we need to keep it alive.



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Directions to Midwestern University – Glendale, AZ

[19555 North 59th Avenue, Glendale AZ 85308](https://www.google.com/maps/place/19555+North+59th+Avenue,+Glendale,+AZ+85308)

[Google Maps Link](#)

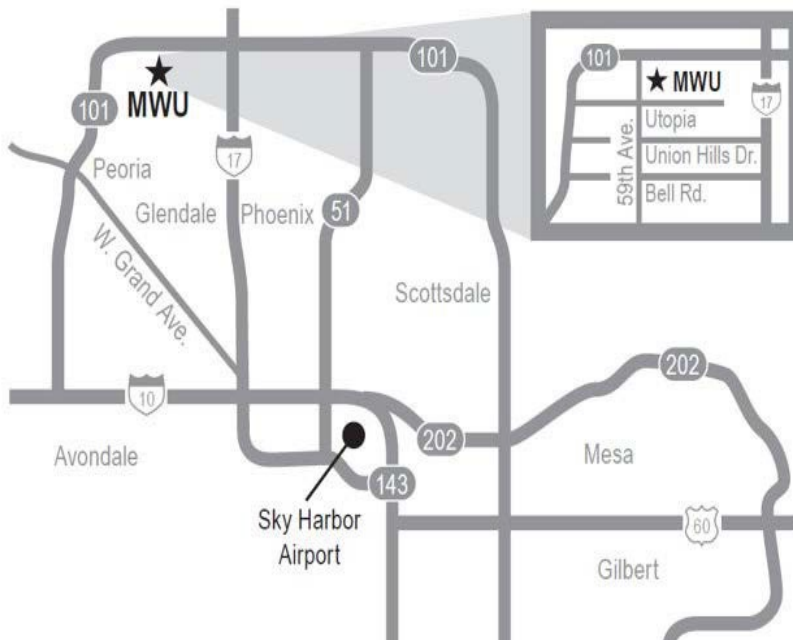
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Via Interstate 17:

- Take Interstate 17
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Meeting registration and regular sessions will be held in Cholla Hall
Dinner reception will be in the Sahuaro Hall Courtyard

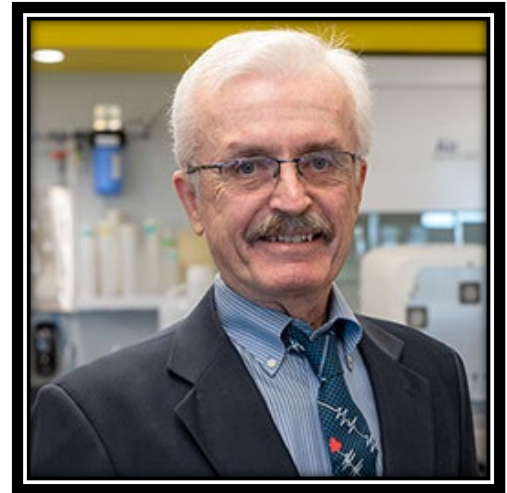
Midwestern University Campus Map



2023 Arizona Physiological Society Senior Scientist Keynote Speaker

[Dr. Chris Glembotski](#)

Professor, Department of Internal Medicine
Director, Translational Cardiovascular Research Center
Associate Dean, Research
University of Arizona



Dr. Chris Glembotski completed his doctoral studies at UCLA in Biochemistry, then did a post-doctoral fellowship in neuroscience and cell physiology at the University of Colorado Health Sciences Center, after which he joined the faculty of the University of Pennsylvania School of Medicine as Professor of Pharmacology, then became Distinguished Professor and Director of the San Diego State University (SDSU) Heart Institute, with additional grant activities and research collaborations at the University of California San Diego, Department of Pharmacology and Division of Cardiology, as well as the Scripps Research Institute in La Jolla, CA. He has had many academic administrative positions in San Diego, including Founding Director of the SDSU Genomics Research Center, Department Chair and Associate Dean for Graduate and Research Affairs. In 2019 Dr. Glembotski was also awarded the Albert Johnson Outstanding Research Award at SDSU, the institution's highest research recognition. In September of 2020, Dr. Glembotski took the position of Professor of Internal Medicine, Associate Dean for Research, and inaugural Director of the Translational Cardiovascular Research Center (TCRC) at UA COMP. In this new role, Dr. Glembotski has built a strong translational research team of basic science and clinical faculty, medical and postdoctoral fellows, as well as graduate and medical students, who work in a vibrant, exciting environment at the TCRC at UA COMP. As the Associate Dean for Research, Dr. Glembotski works with scientists and physicians in many fields to enhance translational research at UA COMP. Dr. Glembotski's own research funding from the NIH has been uninterrupted for his entire career and has amounts to more than \$40M in R01 as well as P01 funding, and numerous prestigious grants from the American Heart Association, including the AHA Established Investigator award. His research is focused on finding novel treatments for ischemic heart disease, cardiomyopathy and heart failure using gene therapy, stem cells and small molecule drug candidate discovery approaches. He has published more than 150 research articles in high impact peer review journals, was awarded the Translational Researcher of the Year Award in the Department of Internal Medicine in 2022 and has an H-index of 72. In addition to heart research, Dr. Glembotski is dedicated to mentoring faculty, research fellows and students to help them achieve their academic and research goals in medicine and science. Dr. Glembotski has mentored more than 50 M.S., Ph.D., and M.D./Ph.D. students, post-doctoral fellows, and faculty in his lab, which focuses on finding cures for heart disease by translating scientific discoveries in the research lab to treatments for patients. His highly regarded mentoring activities were recognized by the International Society for Heart Research, prestigious Eric N. Olson Mentorship Award in 2021.

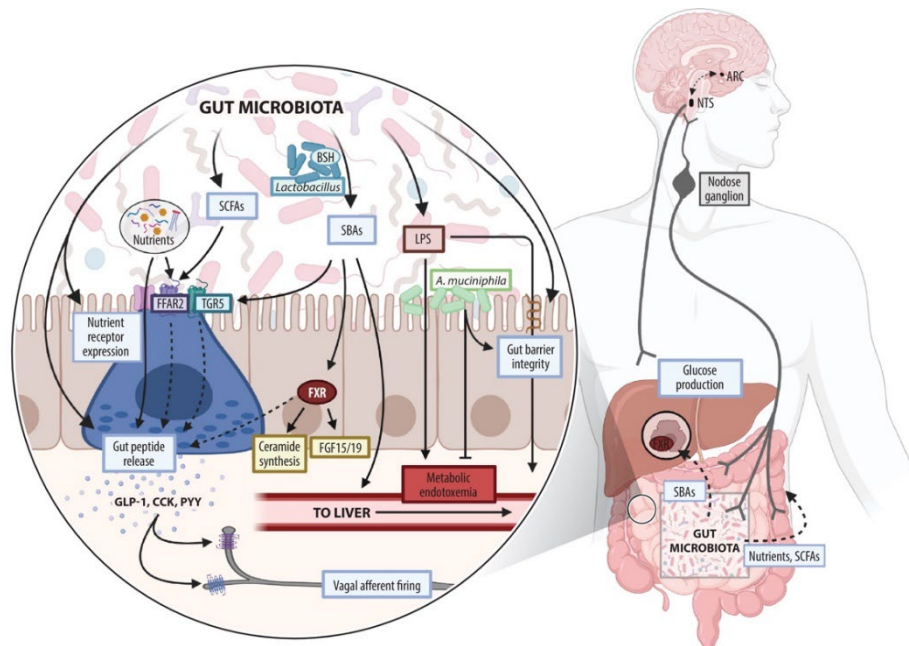
2023 Arizona Early Career Investigator Keynote Speaker

Dr. Frank A. Duca

Assistant Professor, Gastrointestinal Microbiology
School of Animal and Comparative Biomedical Sciences
College of Agriculture and Life Sciences
University of Arizona



Dr. Frank Duca is an Assistant Professor in the School of Animal and Comparative Biomedical Sciences at the University of Arizona. He obtained his PhD from Pierre and Marie Curie University in 2013, examining the impact of high-fat diets and obesity on gut-brain signaling and the gut microbiome. He was a Banting Postdoctoral Fellow at the Toronto General Hospital Research Institute, under the mentorship of Dr. Tony Lam, where he examined how metformin can directly, and indirectly via the gut microbiome, impact hepatic glucose production through a neuronal gut-brain-liver axis. At the University of Arizona, his lab is currently focused on how dietary and environmental exposures can impact gut-brain signaling mechanisms that regulate metabolic homeostasis. His lab is especially interested in how changes in the gut metagenome and metabolome can influence the development of metabolic dysregulation via alterations in nutrient-sensing, vagal signaling, and the central nervous system.



Howard E.J., et al. 2022
Annu. Rev. Med. 73:469-81

From Howard, E. J., Lam, T. K., & Duca, F. A. (2022). The Gut Microbiome: Connecting Diet, Glucose Homeostasis, and Disease. *Annual Review of Medicine*. 73. 469-481.

2023 AZPS ANNUAL MEETING – PROGRAM SCHEDULE

Friday, October 27, 2023

8:45 AM - 9:45 AM **Registration/Poster Setup/Coffee & Refreshments (Cholla Hall)**

9:45 AM - 10:00 AM **Welcome Remarks**

10:00 AM - 11:00 AM **Session 1- Cardiovascular Health & Beyond**

Session Chairs: Dr. Karen Sweazea (ASU), Dr. Ann Revill (MWU)

10:00 AM Chen-Wei Liu, Postdoctoral [The molecular functions of HDAC9 in the](#)
[S1.1](#) Fellow, University of Arizona [development of e-cigarette-induced](#)
Phoenix [atherosclerosis by promoting endothelial-](#)
[mesenchymal transition](#)

10:15 AM Sukriti Bagchi, Graduate [SGK1 is a Key Mediator of Pathological](#)
[S1.2](#) Student, University of [Cardiac Fibrosis](#)
Arizona, Phoenix

10:30 AM Ngunyi Fuangunyi, [The Multifaceted Nature of Cardiovascular](#)
[S1.3](#) Undergraduate Student, [Disease and Why Race Matters](#)
University of Arizona Phoenix

10:45 AM Monique Martinez, Graduate [Impact of Mid-gestation Toll-like Receptor 7](#)
[S1.4](#) Student, University of [Stimulation on Development and Anxiety-like](#)
Arizona, Phoenix [Behavior in Offspring](#)

11:00 AM - 11:15 AM **Break & Visit to Vendors**

11:15 AM - 12:00 PM **Session 2- Beyond Binary: Exploring Sex Differences in Physiology**

Session Chairs: Dr. Jennifer Teske (U of A), Dr. Shirin Doroudgar (U of A)

11:15 AM Dana Floyd, Research [Sex-Specific Regulation of Gonadal Hormone](#)
[S2.1](#) Associate, University of [Receptor Gene Expression Following Ang II](#)
Arizona Phoenix [Infusion in Spontaneously Hypertensive Rats](#)

11:30 AM Sebastiao Donato Silva J., [Sex-specific effects of transient losartan](#)
[S2.2](#) Postdoctoral Fellow, [treatment on angiotensin II-induced](#)
University of Arizona Phoenix [fibrogenic signaling in the heart of](#)
[spontaneously hypertensive rats](#)

11:45 AM Arielle Condes & Elyse [Sex Differences in Redox Balance: Effects of](#)
[S2.3](#) Policastro, Undergraduate [Ageing and Exercise](#)
Student, Northern Arizona
University

12:00 PM S2.4	Arpan Sharma, Graduate Student, University of Arizona Phoenix	<u><i>Sex-Specific Regulation of Catecholamine Signaling in Rats Exposed to Dexmethasone in Utero and Angiotensin in Adulthood</i></u>
12:15 PM - 1:15 PM	Lunch & Visit to Vendors (Cholla Hall)	
1:15 PM - 2:00 PM	One Minute Poster Presentation	
2:00 PM - 3:00 PM	<u>Arizona Senior Scientist Keynote Speaker</u> Dr. Christopher Glembotski, Professor, University of Arizona Phoenix <u><i>Proteostasis in Heart Health & Disease: A Degrading Proposition</i></u>	
3:00 PM - 3:15 PM	Break & Visit to Vendors	
3:15 PM - 4:30 PM	<u>Session 3 - From Fork to Flora: Navigating Diet, Glucose, and Gut Health</u> Session Chairs: Dr. Nafisa Jadavji (MWU), Dr. Dallin Tavoian (U of A)	
3:15 PM S3.1	Kailin Johnsson, Graduate Student, Arizona State University	<u><i>Correlation of Plasma LPL Activity with Measures of Body Composition across Subjects with Varying Levels Insulin Sensitivity</i></u>
3:30 PM S3.2	Elizabeth Howard, Graduate Student, University of Arizona Tucson	<u><i>Impact of Plant-Derived Dietary Fibers on Energy and Glucose Homeostasis</i></u>
3:45 PM S3.3	Savanna Weninger, Graduate Student, University of Arizona Tucson	<u><i>Longitudinal characterization of the gut microbiota in the ZDSD rat model of diabetes</i></u>
4:00 PM S3.4	Nicholas Smith, Medical Student, Midwestern University	<u><i>Assessment of reversal effects on genistein and exercise on hepatic tissues</i></u>
4:15 PM S3.5	Nathan Connell, Undergraduate Student, University of Arizona Tucson	<u><i>The impact of dietary tryptophan levels on energy in glucose homeostasis in LFD and HFD-fed mice</i></u>
4:30 PM - 4:45 PM	Break & Visit to Vendors	
4:45 PM - 6:00 PM	<u>Session 4 - Neural Echoes: The Brain's Dance with Physiological Stimuli</u> Session Chairs: Dr. John VandenBrooks (ASU), Dr. Mingyu Liang (U of A)	
4:45 PM S4.1	Tala Curry, Graduate Student, University of Arizona Phoenix	<u><i>Accelerated Cerebrovascular Aging and Vulnerability to Traumatic Brain Injury in Marfan Syndrome Mice</i></u>

5:00 PM S4.2	Aleanna Melliza & Alexis Osbourne, Graduate Students, Midwestern University	<u>Characterization of HCN channel subtypes and the contribution of "I_h" in postnatal maturation of muscarinic modulation of inspiratory bursting at hypoglossal motoneurons</u>
5:15 PM S4.3	Petter Burrows, Medical Student, Midwestern University	<u>Ischemic stroke increases levels of one carbon enzymes, the folate receptor, and choline metabolism in post-mortem male and female brain tissue</u>
5:30 PM S4.4	Julius Vellutato, Medical Student, Midwestern University	<u>Characterizing Muscarinic Receptor Subtype Roles in Inspiratory Bursting of Hypoglossal Motoneurons in Postnatal Mice</u>
5:45 PM S4.5	Stephenie Thai, Graduate Student, University of Arizona Tucson	<u>PNA5 restores BKCa function in cerebral artery smooth muscle cells of female 5x-FAD mice</u>
6:00 PM - 7:00 PM	Dinner Reception (Sahuaro Hall Courtyard)	
7:00 PM - 9:00 PM	1st Poster Session/Wine & Desserts (Cholla Hall 112-118)	

Saturday, October 28, 2023

8:00 AM - 9:00 AM	Continental Breakfast & Visit to Vendors (Cholla Hall)	
9:00 AM - 10:15 AM	<u>Session 5 - Endothelial Dysfunction: Normal & Accelerated Aging</u> Session Chairs: Dr. Tinna Traustadottir (NAU), Dr. Delrae Eckman (MWU)	
9:00 AM S5.1	Josiane da Silva, Postdoctoral Fellow, University of Arizona Tucson	<u>Age-dependent cerebral microvascular dysfunction in ApoE4 knock-in mice</u>
9:15 AM S5.2	Sara Djurich, Graduate Student, University of Arizona Tucson	<u>Modeling conducted responses in microvascular networks: current rectification in endothelial cell gap junctions</u>
9:30 AM S5.3	Trevor Wendt, Graduate Student, University of Arizona Phoenix	<u>PM2.5 Temporally Decreases Human Brain Microvascular Endothelial Barrier Proteins and Concomitantly Increases Inflammation and Autophagy in a Dose Dependent Manner</u>
9:45 AM S5.4	Hoai Huong Le, Graduate Student, University of Arizona Phoenix	<u>Role of exosomal miRNAs in the crosstalk between endothelial cells and macrophages following e-cig exposure</u>

10:00 AM S5.5	Felipe Polk, Graduate Student, University of Arizona Tucson	<u>Endothelial KIR2 channel dysfunction in aged cerebral parenchymal arterioles</u>
10:15 AM - 10:30 AM	Break & Visit to Vendors	
10:30 AM - 11:30 PM	<u>AZ Early Career Lecture</u> Dr. Frank Duca, Assistant Professor, University of Arizona Tucson <u>Impact of Small and Large Intestinal Microbiota on Metabolic Homeostasis</u>	
11:30 AM - 2:00 PM	2nd Poster Session & Lunch (Cholla Hall Lobby & Rooms 112-118)	
2:00 PM - 2:45 PM	<u>Session 6 - Integrative Pathophysiology: Bridging Systems & Disciplines</u> Session Chairs: Dr. Frank Duca (U of A), Dr. Haiwei Gu (ASU)	
2:00 PM S6.1	Keila Espinoza, Graduate Student, University of Arizona Tucson	<u>Loss of Acid Ceramidase in Myeloid Cells Alleviates Chronic Colitis in IL10^{-/-} Mice</u>
2:15 PM S6.2	Dominick Rodriguez, Graduate Student, Northern Arizona University	<u>Effects of Ex Vivo Sulforaphane Stimulation in Human PBMCs Before & After Exercise</u>
2:30 PM S6.3	Andrew Yang, Graduate Student, Midwestern University	<u>Progranulin and Lysosomal pH: implications for potential new therapeutic strategy for neurodegenerative diseases</u>
2:45 PM - 3:00 PM	Break & Visit to Vendors	
3:00 PM - 4:00 PM	Awards & Business Meeting	



Poster Sessions

Posters **P1 – P26** will be available in **Session 1: Friday October 27th, 7:00 PM - 9:00 PM**

Posters **P28 – P55**: will be available in **Session 2: Saturday October 28th, 11:30 AM - 1:30 PM**

Poster ID	Lead Author (s)	Institution	Poster Title
P1	Bin Liu	University of Arizona	<u>Fatty acid-binding proteins promote pulmonary hypertension via glycolysis</u>
P2	Baylee Reed	University of Arizona	<u>Inspiratory Muscle Strength Training to Improve Cardiometabolic Health in Patients with Type 2 Diabetes: Protocol for the Diabetes Inspiratory Training (DIT) Clinical Trial</u>
P3	Marjan Aghajani	University of Arizona	<u>The E3 Ubiquitin-Protein Ligase Synoviolin (Syvn1/Hrd1) Promotes Adaptive Decreases in Cardiac Myocyte Protein Synthesis via eIF2α/ATF4 Pathway Activation</u>
P4	Spencer Vroegop	Midwestern University	<u>Long-term intermittent fasting induces changes to glucose metabolism and limits apoptosis in the SAMP8 aged murine jejunum</u>
P5	Alisha Harrison	Midwestern University	<u>Marfan Syndrome Increases Apoptotic Neurons Female Mice</u>
P6	Sean Noudali	University of Arizona	<u>SNAP23 is a Novel Regulator of Autophagy in Cardiomyocytes</u>
P7	Colton Lane	Midwestern University	<u>Cadaveric investigation of posterior interventricular artery variation and review of clinical implications</u>
P8	Thalia Olson	Midwestern University	<u>Cadaveric investigation of anatomical variants in the thyroid region and clinical implications for emergency airway procedures</u>
P9	Bhavik Rajaboina	University of Arizona, Phoenix	<u>Impact of Aging After Traumatic Brain Injury: Evaluation of neuropathology, axonal injury, neuroinflammation, autophagy, and pTau pathology in the dentate gyrus at 6-months post-injury</u>
P10	Sanika Joshi	Midwestern University	<u>Vascular dementia results in increased levels of methylenetetrahydrofolate reductase in cortical brain tissue of elderly female patients</u>
P12	Alina Bilal	University of Arizona, Phoenix	<u>SGK1 Promotes Atrial Pathology in HFpEF</u>

Poster ID	Lead Author (s)	Institution	Poster Title
P13	Ela Romanoski	University of Arizona	<i>Levels of dietary carbohydrate, sleep, and noise exposure affect PERK protein levels in biofluids</i>
P14	Ranon Plett	University of Arizona	<i>Glycodeoxycholic Acid Impacts Metabolic Homeostasis in High Fat Fed Mice</i>
P15	Jonathan Tuscano	Midwestern University	<i>Impact of Heavy Metals on Bone Porosity in North American River Otter</i>
P16	Jinhua Chi	Arizona State University	<i>Direct Evidence of Metabolic Interactions between PBDEs and Gut Microbes: an In Vitro Metabolomics Study</i>
P17	Nolan Dunn	University of Arizona	<i>Acute effects and vascular response to inspiratory resistance training</i>
P18	Marjan Fakhrizadeh Esfahani	University of Arizona, Phoenix	<i>Regulation of Cardiokine Secretion and Cardiac Function by Peptidylglycine α-Amidating Monooxygenase (PAM)</i>
P19	Ananya Shah	University of Arizona	<i>Inconsistent Sleep Decreases Urinary and Salivary PERK Levels</i>
P20	Jared Alvarez	Arizona State University	<i>Sex-Specific Regulation of Catecholamine Signaling in Rats Exposed to Dexamethasone In Utero and Angiotensin in Adulthood</i>
P21	Ernest Sandoval	University of Arizona, Phoenix	<i>IRE1α protects against cardiac fibrosis via regulating selective mRNA degradation</i>
P22	Trevor Wendt	University of Arizona, Phoenix	<i>OxLDL/LOX-1 Mediated Sex, Age, and Endothelial Dependent Alterations in Vascular Reactivity in Murine Thoracic Aortic Rings</i>
P23	Trevor Wendt	University of Arizona, Phoenix	<i>OxLDL preconditioning temporally intensifies ischemic-like injury mediated alterations in human male brain endothelial cell tight junction protein levels and proinflammatory mediators</i>
P24	Michael Britton	Arizona State University	<i>Aerobic scope in tropical amphibians: Evolutionary patterns and implications for climate change vulnerability</i>
P25	Mohammad Shahidullah	University of Arizona	<i>TRPM3 activation reduces Na,K-ATPase activity in cultured mouse lens epithelium</i>

Poster ID	Lead Author (s)	Institution	Poster Title
P26	Theresa Thomas	University of Arizona, Phoenix	<u>Early circuit-directed rehabilitation reduced severity of late-onset symptoms and corresponding neurotransmission after diffuse traumatic brain injury in rat</u>
P28	Mitchell L. Haddock/Theresa Thomas	University of Arizona, Phoenix	<u>Sex-dependent chronic growth hormone dysregulation after experimental diffuse traumatic brain injury in rats</u>
P29	Qiongzi Qiu	University of Arizona	<u>The single-cell and spatial transcriptional landscape of advanced diabetic and hypertensive kidney disease in humans</u>
P30	Rory Lockett	Arizona State University	<u>Impact of urban diets on the nutritional physiology of mealworms</u>
P31	Riley Hamel	Midwestern University	<u>Mn Porphyrins Affect Hydrogen Peroxide Levels in Parkin Loss-of-Function Drosophila melanogaster</u>
P32	Adrienne C. Scheck	University of Arizona, Phoenix	<u>Preclinical and Clinical Data Supporting the Use of Ketogenic Therapy for the Treatment of Diffuse Intrinsic Pontine Glioma</u>
P33	Samuel Danoff	University of Arizona	<u>Age- and Aging-with-Injury: Temporal Microglial Morphological Profiles Indicate Unique Pathological Processes in Behaviorally Relevant Circuit Relays</u>
P34	Carrie Standage-Beier	University of Arizona	<u>Associations between EDARV370A and Glycemic Traits in Southwest Hispanics</u>
P35	Alec Robitaille	Midwestern University	<u>Effects of Macromolecular Crowding on the Enzyme Kinetics of Glutamate Dehydrogenase</u>
P36	Siddarth Gunnala	Midwestern University	<u>Understanding functional outcomes of hypoxia associated with over-supplementation of folic acid in Drosophila melanogaster</u>
P37	Christine Lee	Midwestern University	<u>Characterization of Serine protease inhibitors from Schistosoma mansoni as targets for public health intervention</u>
P38	Gia Vu	Grand Canyon University	<u>Cytotoxicity effects of Cyanidin Chloride and Withaferin-A on SHSY-5Y and CHLA-03 cell growths using MTT assay</u>
P39	Emran Hassanzada	Midwestern University	<u>Title: A case of a giant solitary trichoepithelioma</u>

Poster ID	Lead Author (s)	Institution	Poster Title
P40	Hunter Delmoe	Midwestern University	<i>Utilizing Biomarker Expression to Assess Platelet Activation During CPB</i>
P42	Shelby McMurray	Midwestern University	<i>Allelic modulation of small mesenteric artery mechanical properties in adult APOE3 & APOE4 Mice</i>
P43	Gaurika Shah	Arizona State University	<i>Efficacy of Rapamycin for Increasing Female Reproductive Longevity in Old Rhesus Macaques</i>
P45	Brikena Gusek	Midwestern University	<i>Vascular Manifestations of Marfan Syndrome: Insights into Aorta, Cerebral, Carotid, Coronary, and Pulmonary Arteries</i>
P46	Mobin Doost	Arizona State University	<i>Synergism of Novel Rexinoids and Vitamin D for the Potential Treatment of Human Diseases</i>
P47	Michael Sausedo	Arizona State University	<i>Development of Novel Drugs to Combat Alzheimer's Disease</i>
P48	Flavio Beas	Arizona State University	<i>Next Generation Novel Rexinoids as Potential Therapeutic Agents for Prevention and Treatment of Cancer and Alzheimer's Disease</i>
P49	Matt Lyons	University of Arizona, Phoenix	<i>Novel Nanoparticle Drug Delivery System Improves Brain Endothelial Cell Barrier Properties Following Acute Ischemia Reperfusion-like Injury</i>
P50	Ngunyi Fuangunyi	University of Arizona	<i>The Multifaceted Nature of Cardiovascular Disease and Why Race Matters</i>
P51	Brikena Gusek	Midwestern University	<i>Age-dependent cardiac and vascular changes in hAPOE3 and hAPOE4 mice: gender-specific insights</i>
P52	Randall Ordovich-Clarkson	Grand Canyon University	<i>Comparing Psilocybin to Metformin as Neuroprotective Agents Against Parkinson's Dementia</i>
P54	Jose Ek-Vitorin	University of Arizona	<i>Lens epithelium and mechanosensor channels</i>
P55	Lila Wollman	University of Arizona	<i>Saccharin exposure blunts the ventilatory response to hypoxia in adult rats</i>