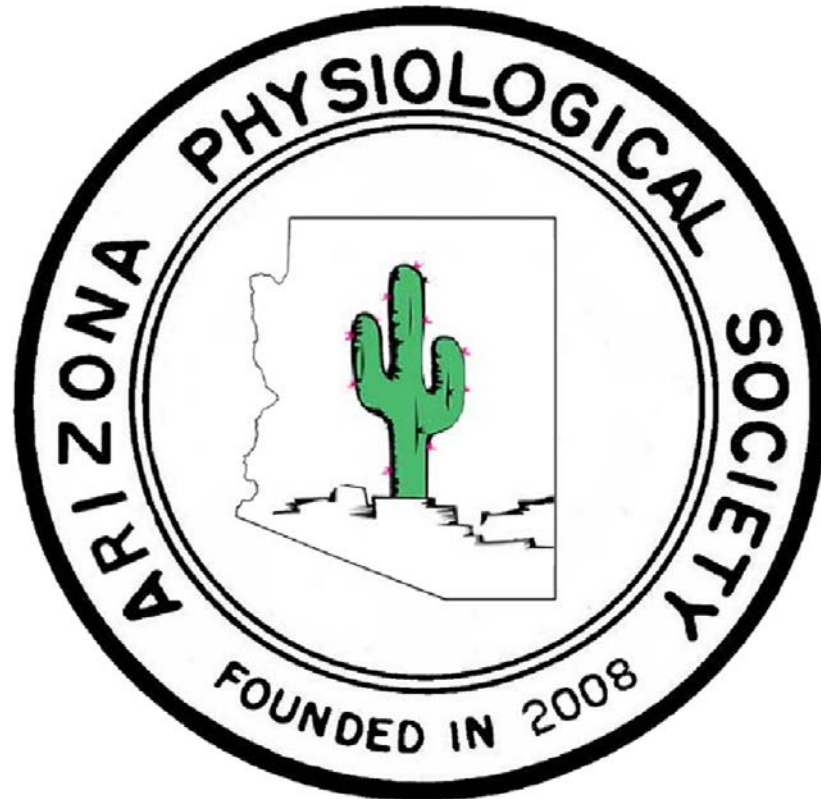


The Arizona Physiological Society



14th Annual Meeting

October 29-30, 2021

Midwestern University

Glendale, Arizona

Institutional Sponsors

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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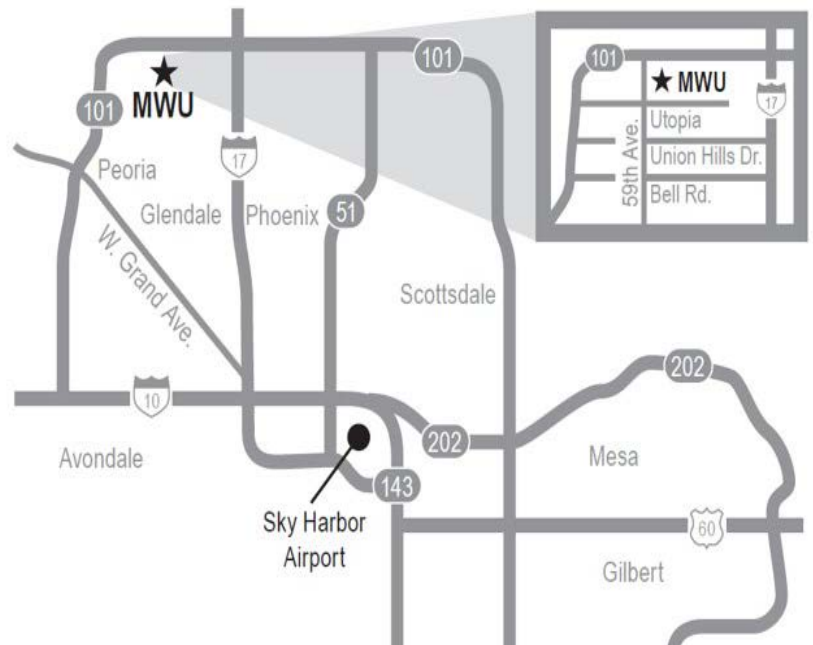
Directions to Midwestern University – Glendale, AZ

Via Interstate 17:

- Take Interstate 17
- Exit on Loop 101 West
- Continue west on 101 to 59th Ave
- Turn left (south) onto 59th Avenue
- Turn left (east) onto Utopia
- Main campus entrance is on the left

Via Interstate 10:

- Take Interstate 10 to Loop 101
- Take Loop 101 North to 59th Ave
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Midwestern University Campus Map

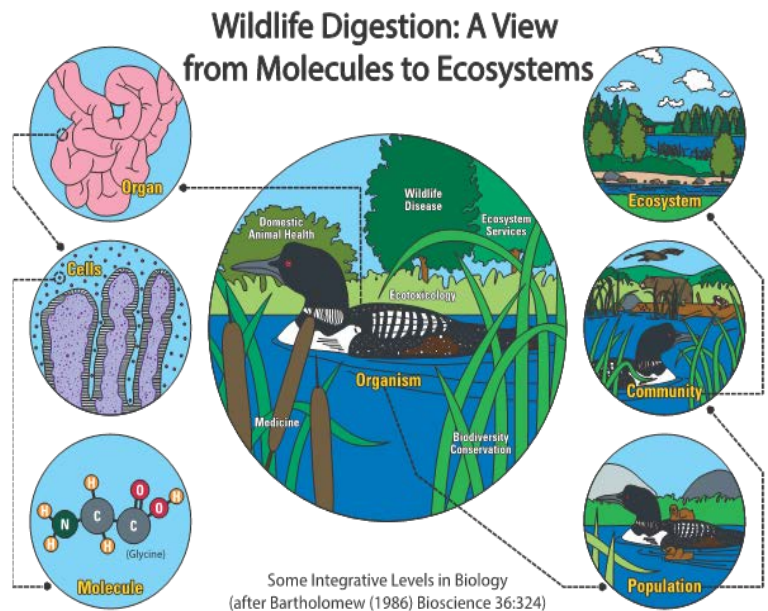


2021 Arizona Physiological Society Keynote Speaker
William H. Karasov, Ph. D.
 University of Wisconsin, Dept. of Forest and Wildlife Ecology



Wildlife Digestion: A View from Molecules to Ecosystems

Digestive physiology links physiology to applications valued by society, such as understanding ecology and ecological toxicology and managing and conserving species. I illustrate this applied and integrative perspective with several case studies. The match between digestive features and diet provides evidence of tradeoffs that preclude doing well on all possible substrates with a single digestive design, and this influences ecological niche partitioning. But some birds, such as wild house sparrow (*Passer domesticus*) nestlings, are digestively very flexible. Their intestinal maltase activity and mRNA for intestinal maltase glucoamylase specifically and reversibly change when they switch among foods with different starch content. House sparrows, many other birds and bats absorb water-soluble monomers such as glucose mainly passively via tight junctions between enterocytes (i.e., paracellular absorption). Such species might be good models for studying this process, which is important biomedically for absorption of drugs or low molecular weight natural water-soluble toxins. Determining absorption of environmental contaminants is another important ecological application. Common loon (*Gavia immer*) chicks absorbed 83% of methyl mercury in fish meals, eliminate the mercury slowly, and consequently are predicted in the wild to bioaccumulate mercury to higher concentrations than in their foods. The quantitative details can be used to set regulatory levels for mercury that will protect wildlife.



2021 Arizona Distinguished Lecture
Dr. Steve Wright
University of Arizona, Department of Physiology



**Maintaining a Positive Outlook:
Mechanisms of Organic Cation Transport**

The broad selectivity of the renal transport proteins, OCT2 and MATE1, allows them to work in concert to actively secrete many organic cations, including about 40% of prescribed drugs. However, that broad selectivity also makes these processes targets for unwanted drug-drug interactions, some of which result in marked changes in the pharmacokinetics of clearance of co-administered compounds. I will discuss current understanding of mechanisms of interaction of substrates and inhibitors with these transporters.

Dr. Wright received Bachelor's and Master's degrees at the University of California, Davis and a PhD in Marine Biology at the University of California, Irvine. After pursuing a postdoctoral fellowship with Dr. Ernest Wright in the Department of Physiology at the UCLA School of Medicine, he joined the faculty of the Department of Physiology in the College of Medicine at the University of Arizona in 1982 and has been Professor of Physiology since 1992 (and of Biochemistry and Molecular Biophysics since 2004). The focus of his research has been on mechanisms of organic electrolyte transport, primarily in the mammalian kidney. The emphasis in recent years has been on the kinetics, energetics and selectivity of organic cation transporters, particularly OCT2 and MATE1.

2021 AZPS ANNUAL MEETING – PROGRAM SCHEDULE

Note: All plenary sessions will take place in the Auditorium (#4). The poster session will take place in Dr. Arthur G. Dobbelaere Science Hall, Lab 150. Breakfast, lunch, and refreshments will be served in the Auditorium Lobby. Please refrain from bringing food into the Auditorium.

Friday, October 29th, 2021

- 1:00 PM **Registration (Auditorium #4)**
Poster Setup (AGD Science Hall, Lab 150)
- 1:45 – 2:00 PM **Welcome to the Meeting**
- 2:00 – 3:00 PM **Session 1: Tales of Neurophysiology – Part 1**
Chairs: Darien Hall, Ph.D., Grand Canyon University
Ricardo Gomez, Grand Canyon University
- 2:00 PM – **Tala Curry, College of Medicine-Phoenix, University of Arizona**
Fibrillin-1 Mutation Accelerates Blood Brain Barrier Dysfunction and Cerebrovascular Aging, Leaving the Brain More Vulnerable to Traumatic Brain Injury
- 2:15 PM – **Sophia Koziol, AZCOM, Midwestern University**
Effects of postnatal maturation on muscarinic acetylcholine receptor distribution in hypoglossal neurons
- 2:30 PM – **Jesse Jauhal, Biomedical Sciences Program, Midwestern University**
Maternal dietary deficiencies in one-carbon metabolism during early neurodevelopment results in sex differences in stroke outcome in middle-aged male and female mice offspring
- 2:45 PM – **Luke Endicott, AZCOM, Midwestern University**
Age-related changes in the retinoic acid synthesis enzyme, ALDH1A2, in the zebra finch vocal circuit
- 3:00 – 3:45 PM **One Minute Poster Presentations**
Chairs: Rayna Gonzalez, Ph.D., College of Medicine-Phoenix, U of Arizona
Bobby Garvin, Ph.D., College of Medicine-Phoenix, U of Arizona
- 3:45 – 4:45 PM **Session 2: One-Health Physiology**
Chairs: Layla Al-Nakkash, Ph.D., Midwestern University
McCoy Clementson, AZCOM, Midwestern University
- 3:45 PM – **Charles Schaefer, College of Graduate Studies, Midwestern University**
Predicting and preventing outbreaks Rocky Mountain Spotted Fever, the deadliest tick-borne disease in the United States

4:00 PM – **Stephany Gonzalez, College of Health Solutions, Arizona State University**

Myosin heavy chain mRNA isoform expression is not affected by exercise or “western-type” diet in mice models

4:15 PM – **Robert Folk, College of Graduate Studies, Northwestern University**

Decreased aortic smooth muscle contraction in the mouse model of Marfan syndrome: Role of nitric oxide

4:30 PM – **Paniz Jasbi, College of Health Solutions, Arizona State University**

Microbiome and Metabolome Profiles of High Screen Time in a Cohort of College Students

4:45 – 5:00 PM **Break**

5:00 – 6:00 PM

Arizona Physiological Society Keynote Speaker

William H. Karasov, Ph. D.

University of Wisconsin Department of Forest and Wildlife Ecology

Wildlife Digestion: A View from Molecules to Ecosystems

Introduction by: Christopher Olson, CGS, Northwestern University

6:00 – 7:30 PM

Dinner (Cafeteria)

7:30 – 9:30 PM

Poster Session – Beer and Wine Reception

Saturday, October 30th, 2021

8:00 – 8:30 AM

Continental Breakfast

8:30 – 10:15 AM

Session 3: Metabolism, Exercise and Cardiovascular Physiology

Chairs: Jose Ek Vitorin, Ph.D., Physiology, University of Arizona

Sara Djurich, Physiology, University of Arizona

8:30 AM – **Kailin Johnsson, School of Life Sciences, Arizona State University**

Reproducibility of a High Fat Diet Induced Weight Gain Over Independent Years

8:45 AM – **Linda Wu, Physiological Sciences, University of Arizona**

Impact of an Exercise Training Intervention on DNA Methylation in Skeletal Muscle

9:00 AM – **Dallin Tavoian, Department of Physiology, University of Arizona**

High-Resistance Breathing Training Enhances Respiratory Strength and Endurance and Blunts Cardiac Response to Exercise

9:15 AM – **Christian Priday, Biomedical Sciences Program, Midwestern University**

Marfan syndrome-associated aortic aneurysm: the role of nitric oxide

9:30 AM – **Matthew Klass, College of Medicine-Tucson, University of Arizona**

Calcium Exchange with Troponin C in Hypertrophic Cardiomyopathy

9:45 AM – **Alexandra Garvin, College of Medicine-Phoenix, University of Arizona**

Is Prohibitin a Mediator of Cardiac Fibroblast Activation?

10:00 AM – **Dana Floyd, Basic Medical Sciences, University of Arizona**

Transient ACE Inhibition Sex-Selectively Impacts Angiotensin II-Induced Fibrogenic Responses

10:15 – 10:30 AM **Break**

10:30 – 12:00 PM **Session 4: Charles Tipton Undergraduate Session**

Chairs: Mitra Esfandiarei, Ph.D., CGS, Midwestern University

Tala Curry, College of Medicine-Phoenix, University of Arizona

10:30 AM – **Remembrance to Dr. Charles “Tip” Tipton, Ph.D., University of Arizona**

By: Dawn Coletta, Ph.D., University of Arizona

10:45 AM – **Chaitanya Sanghadia, College of Medicine-Phoenix, University of Arizona**

TBI-Induced and Age-Related Neuroinflammation Intersect at 6-Months Post-Injury

11:00 AM – **Kristiann Ferreira, Basic Medical Sciences, University of Arizona**

Impact of Doxorubicin and Metformin on Cardiac Mitochondrial Electron Transport Chain Proteins

11:15 AM – **Ellaine Villano and Yasmin Leon, Biology, Northern Arizona University**

Can Astaxanthin Improve Redox Signaling in Older Adults?

11:30 AM – **Megan Anderson, Anatomy and Physiology, Grand Canyon University**

Neuroprotective Effects of An Over-The-Counter Curcumin Supplement Against Rotenone Induced Toxicity

11:45 AM – **Nafis Eghrari, College of Medicine-Phoenix, University of Arizona**

Differential expression profiles of S1PR types 1-5 following hypoxia plus glucose deprivation in human cerebrovascular cells

12:00 – 1:00 PM **Box Lunch**

1:00 – 2:15 PM **Session 5: Tales of Neurophysiology – Part 2**
Chairs: Paulo Pires, Ph.D. University of Arizona
Madeline Gauthier, Physiological Sciences, U of Arizona

1:00 PM – **Trevor Wendt, Biology, University of Arizona**

Unveiling a detrimental role for oxLDL/LOX-1 during occlusive stroke: targeting endothelial health and function

1:15 PM – **Sabeeha Reshi, School of Life Sciences, Arizona State University**

Therapeutic Potential Of Novel Reginoids In Prevention And Treatment Of Alzheimer's Disease

1:30 PM – **Jade Blackwell, Department of Physiology, University of Arizona**

Post-menopausal impairment in brain arteriolar endothelial K⁺ channel function in a mouse model of Alzheimer's disease

1:45 PM – **Kellie Jeong and Asha Kurup, AZCOM, Midwestern University**

Investigating muscarinic receptor subtype roles on inspiratory bursting at hypoglossal motoneurons of neonatal mice

2:00 PM – **Abdul Algamdy, College of Pharmacy, Midwestern University**

Alcohol effects on Dopamine Signaling in the Zebra Finch vocal circuit

2:15 – 2:30 PM **Break**

2:30 – 3:30 PM **Arizona Distinguished Physiologist Lecture**
Stephen H. Wright, Ph. D.
University of Arizona, Department of Physiology
Maintaining a Positive Outlook: Mechanisms of Organic Cation Transport
Introduction by: Lucy J. Martinez Guerrero, Ph.D., University of Arizona

3:30 – 3:45 PM **Break**

3:45 – 4:30 PM **Business Meeting and Awards**