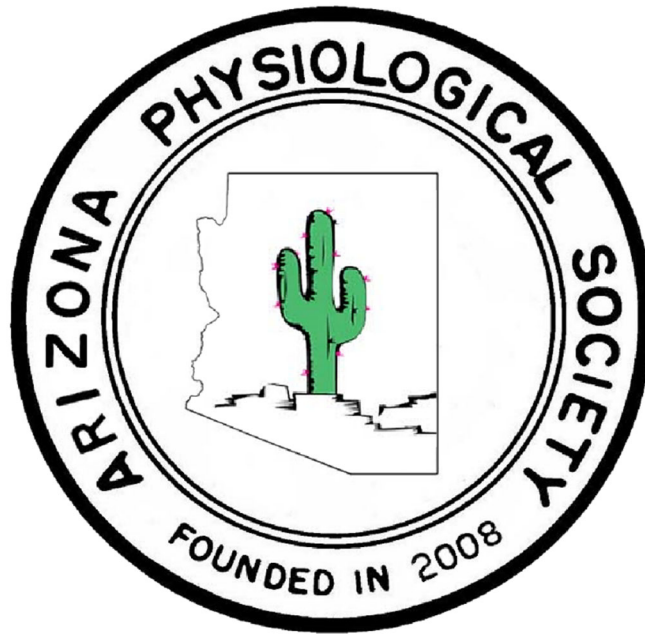


# **The Arizona Physiological Society**



12<sup>th</sup> Annual Meeting

November 1-2, 2019

**Arizona State University**

Old Main, Tempe Campus

# Sponsors and Support

## Corporate Sponsors

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Many, many thanks to our corporate sponsors: Azure Biosystems, Sable Systems, and VWR.

Without their continued support, our annual meetings would not be possible.

Please visit their exhibit tables here at the meeting to see the kinds of scientific research solutions they offer. Raffle tickets will be available at their tables for lunch on Friday and to be entered into a raffle for exciting prizes!!



# Institutional Sponsors

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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.



# Directions to the ASU Tempe Campus

(to the Fulton Center Parking structure and The Graduate Hotel)

## Directions via Google

### **From Phoenix Sky Harbor Airport**

Take Loop 202 East to Scottsdale/Rural Rd. (Exit 7).

Turn right onto Rural Rd.

Turn right onto University Drive.

### **From West Valley**

Take I-10 East toward Tucson.

Exit onto Loop 202 toward Tempe.

Exit Scottsdale Rd. and turn right.

Turn right onto University Drive.

### **From Northeast Valley**

Take Scottsdale Rd. South toward Tempe.

Turn right onto University Drive.

### **From Southeast Valley**

Take the 60 West into Tempe.

Exit at Mill Ave. and turn right.

Turn right on University Drive.

### **From Tucson**

Take I-10 West to Tempe

Exit onto US 60 East

Exit Mill Ave. and head North

Turn right on University Drive.

### **From Flagstaff**

Take I-17 south to Phoenix

Exit I-10 East

Exit 202 Loop East

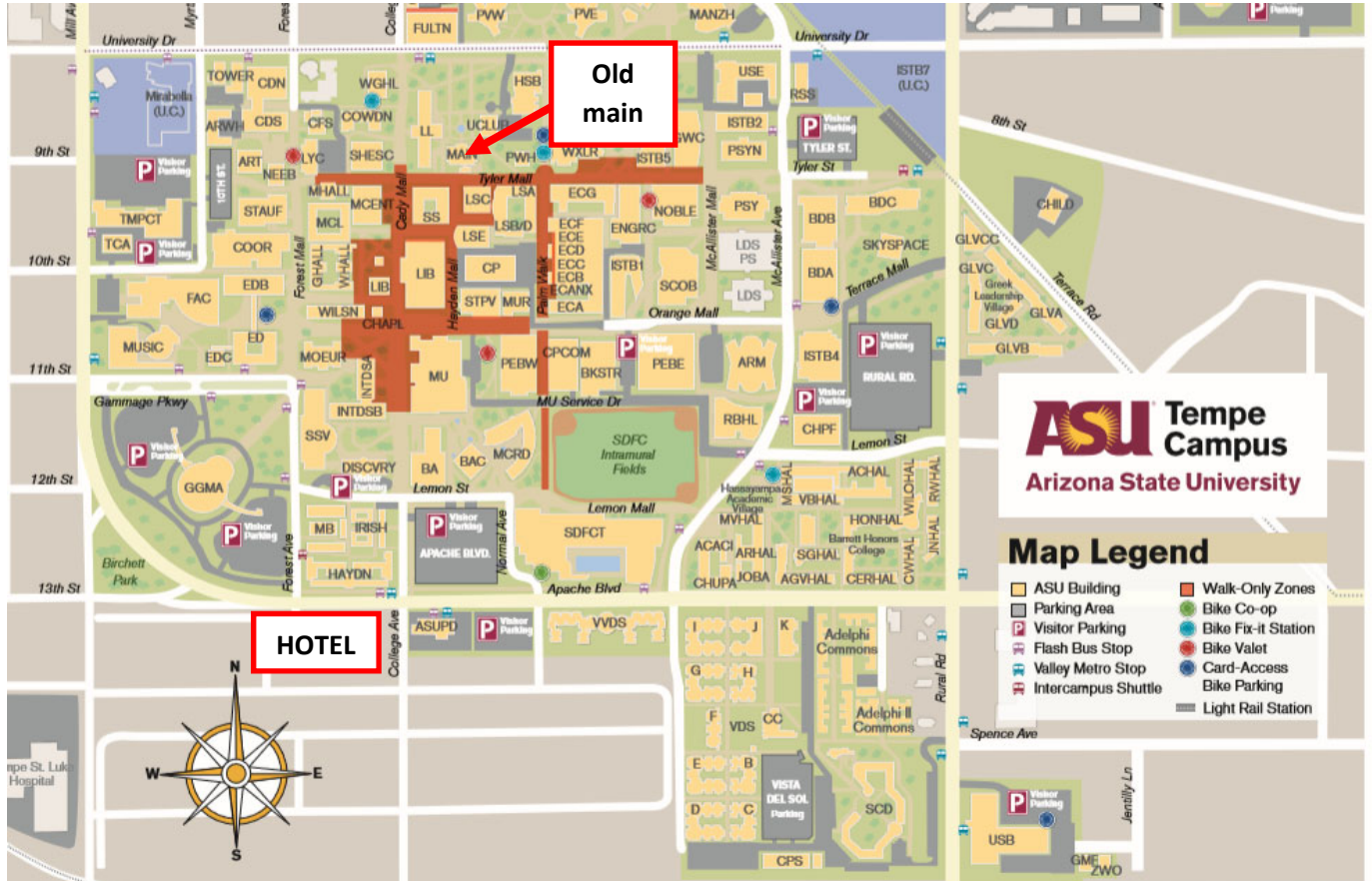
Exit Scottsdale Rd/Rural Rd and turn right

Turn right onto University Drive.



# ASU Tempe Campus Map

**P** Visitor parking



Hotel = The Graduate

**2019 Arizona Distinguished Lecture**  
Dr. Ralph Fregosi  
*University of Arizona, Department of Physiology*



Dr. Ralph Fregosi joined the faculty at the University of Arizona in 1988 and is currently Professor of Physiology and of Neuroscience. His main interests include development of synaptic transmission in brainstem respiratory neurons, and physiology of the upper airways. Non-work activities include being a grandpa, woodworking, mountain biking and baseball.

A career that began with exercise physiology took many twists and turns over the last 33 years, suggesting that carefully planning a research career may be a fool's errand. In this seminar I will describe the winding road that lead us to our current work on the influence of perinatal nicotine exposure on the development of motor neurons. This work is the latest epoch on a journey that began with study of the influence of exercise and/or hypoxia on diaphragm muscle metabolism, with stopovers spent exploring the neural control of expiratory muscles and the regulation of upper airway flow and resistance by the tongue muscles. Along the way the two most important things that I learned are the importance of surrounding yourself with great people, and that techniques must always follow questions, not the other way around.

**2019 Keynote Lecture**  
Dr. Gabriel Haddad  
*Rady Children's Hospital, San Diego, CA*



Dr. Gabriel G. Haddad, a world-renowned leader in respiratory research for more than 25 years, is the Chair of UCSD's Department of Pediatrics and Physician-in-Chief and Chief Scientific Officer at Rady Children's Hospital, San Diego.

The overall interest of Dr. Haddad's laboratory is the effect of low oxygen or hypoxia on cell function and development. Mammalian tissues are extremely sensitive to the stress of hypoxia and can only survive for relatively short periods of time. The Haddad lab is interested in the molecular mechanisms that underlie susceptibility to injury under these conditions, especially in nerve cells and glia. To examine the susceptibility of sensitive tissues to low oxygen, mice are studied with the use of electrophysiological, molecular biological and genetic techniques.

# PROGRAM SCHEDULE

*Note: \*All sessions will take place in the Carson Ballroom located on the second floor of the Old Main building on the Tempe campus.*

## FRIDAY November 1

- 10:00 – 10:45 AM**      **Registration/Poster Setup**  
**10:45 – 11:00 AM**      **Welcome to the Meeting**  
Jon Harrison, AZPS President
- 11:00 AM – Noon**      **Session 1: Metabolism and Muscle Physiology**  
*Chairs: Tobias Riede (MWU) and Zack Graham (ASU)*
- 11:00 AM Siwoo Jeong, Graduate Student, NAU  
*The different ratio of muscle stiffness to muscle force after active shortening at different velocities*
- 11:15 AM Savannah Berry, Graduate Student, NAU  
*Sex Differences in Mechanisms to Mitigate Oxidative Stress Levels in Response to an Exercise Intervention*
- 11:30 AM Ethan Ostrom, Graduate Student, NAU  
*Improvements in aerobic fitness predict responses to change in redox capacity in men but not women*
- 11:45 AM Madeleine Ostwald, Graduate Student, ASU – School of Life Sciences  
*Sociality Confers Energetic Savings in a Large Carpenter Bee*
- Noon – 1:00 PM**      **Lunch with Vendors and Raffle**  
**1:00 – 1:45 PM**      **One Minute Poster Presentations**  
**1:45 – 3:15 PM**      **Session 2: Cardiovascular Physiology**  
*Chairs: Paulo Pires (UA COM-Tucson) and Ike Chinyere (UA COM-Tucson)*
- 1:45 PM Megan Sylvester, Graduate Student, UA COM – Tucson  
*Exploring Sex Differences In Immune Cell Profiles Of Male, Premenopausal, And Postmenopausal Female Mice To Understand Susceptibility To Immune Mediated Hypertension*
- 2:00 PM Bobbie Garvin, Postdoctoral Fellow, UA COM – Phoenix  
*Transient Angiotensin Converting Enzyme Inhibition in Hypertensive Rats Homogenizes the Cardiac Fibroblast Population Supporting a Less Fibrogenic Transcriptome*
- 2:15 PM Matthew Klass, Graduate Student, UA COM – Tucson  
*Mutation-specific calcium dysregulation in troponin t-associated hypertrophic cardiomyopathy*
- 2:30 PM Tala Curry, Graduate Student, UA COM – Phoenix/MWU  
*Role of Caveolin-1 in a Mouse Model of Marfan Syndrome-Associated Aortic Aneurysm*
- 2:45 PM Nicholas Talley, Graduate Student, MWU  
*Understanding the Role of Inducible Nitric Oxide (iNOS) on the progression of Marfan Syndrome Associated Aortic Aneurysms*
- 3:00 PM Lakshmi Madhavpeddi, Graduate Student, UA COM – Phoenix  
*Impact of Prenatal Dexamethasone on Adult Cardiovascular Autonomic Regulation*
- 3:15 – 3:30 PM**      **Break**  
**3:30 – 4:45 PM**      **Session 3: Comparative and Environmental Physiology**  
*Chairs: Kiisa Nishikawa (NAU) and Stav Talal (ASU)*
- 3:30 PM Anthony Basile, Graduate Student, ASU – School of Life Sciences  
*Under Krogh's Umbrella: Comparative Physiology in a New Age*



- 3:45 PM Jacob Youngblood, Graduate Student, ASU – School of Life Sciences  
*Outbreking locusts thermoregulate to maximize digestive performance*
- 4:00 PM Trevor Fox, Graduate Student, ASU – School of Life Sciences  
*Quantifying unidirectional ventilation in tenebrionid beetles*
- 4:15 PM Adrian Fisher II, Postdoctoral Fellow, ASU – School of Life Sciences  
*A widely-used fungicide produces symptoms of Colony Collapse Disorder in honey bees (Apis mellifera)*
- 4:30 PM Alec Oliva, Graduate Student, MWU  
*Canine-based risk factors drive the spread of RMSF in Arizona and Northern Mexico*
- 4:45 – 5:00 PM            Break**
- 5:00 – 6:00 PM            Keynote Speaker: Gabriel Haddad, MD, Rady Children's Hospital, San Diego, CA**  
*Of flies and people: adaptation to high-altitude hypoxia*
- 6:00 – 7:30 PM            Dinner and Trainee Networking/Career Development Session (organized by Dr. Bobbie Garvin, UACOM - Phoenix)**
- 7:30 – 9:30 PM            Poster Session**

## **SATURDAY, November 2**

**8:00 – 8:30 AM**            **Continental breakfast**

**8:30 – 9:45 AM**            **Session 4: The Charles Tipton Undergraduate Symposium**

*Chairs: Haiwei Gu (ASU – CHS) and Karina Ahmadizadeh (MWU)*

8:30 AM Trevor Wendt, UA COM – Phoenix

*SIPR-1 Activation Protects Against Ischemia-Induced Inflammation and Dysfunction in Human Brain Microvascular Endothelial Cells*

8:40 AM Sarah Livingston, ASU – New College

*Nutraceuticals Derived From Pomegranate Selectively Enhance Vitamin D Receptor Signaling To Amplify Key Vitamin D Target Genes*

8:50 AM Amal Altaf, UA COM – Phoenix

*Unlocking Signaling Mechanisms That Underlie Persistent Anti-Fibrotic Effects of Transient ACE Inhibition*

9:00 AM Anthony Albrecht, UA COM – Phoenix

*SIPR Ligand Protects Against Hypoxia plus Glucose Deprivation-Induced Morphological Changes in Human Brain Vascular Smooth Muscle*

9:10 AM Brittney Childress, UA COM – Tucson

*Club Cell Secretory Protein-16 Deficiency Leads to a Predominately Neutrophilic Airway Inflammatory Response in a Mouse Model of Asthma*

9:20 AM Cassidy Turner, ASU – CHS

*Ovarian Cancer Detection Using Targeted Plasma Metabolomics*

9:30 AM Jack Short, GCU

*Effects of Stress and Exercise on Heart Rate Variability*

**9:45 – 10:00 AM**            **Break**

**10:00 – 11:00 AM**            **Session 5: Clinical and Respiratory Physiology**

*Chairs: Rakhad Alwari (GCU) and Reem Farad (UA COM – Phoenix)*

10:00 AM Stephanie Bruggink, Postdoctoral Fellow, UA COM – Tucson

*Head-out plethysmography applied to study the role of obesity and muscarinic signaling in asthma*

10:15 AM Paniz Jasbi, Graduate Student, ASU – CHS

*A Brain Tissue Metabolomic Signature Discloses Alzheimer's Disease Post-Mortem*

10:30 AM Charles Schaefer, Postdoctoral Fellow, MWU

*Male Sprague Dawley Rats use Deep Breaths in their Ultrasonic Vocal Behavior.*

10:45 AM Kristen Bolte, Graduate Student, MWU

*Characterizing the Action of Arginine Vasopressin at Hypoglossal Motoneurons in Neonatal Mice*

**11:00 – 11:15 AM**            **Break**

**11:15 – 12:15 PM**            **Arizona Distinguished Physiologist Lecture, Dr. Ralph Fregosi, UA COM-Tucson**

*'If you don't know where you are going, you'll end up someplace else.' - How Yogi Berra's words forecast my career in physiology*

**12:15 – 2:00 PM Lunch with Business Meeting and Awards**

## Poster Session

**Note:** In addition to presenting their poster during the Poster Session, each poster presenter gets one minute (without slides) to present the primary question and/or result of their poster during the One Minute Poster Presentation Session.

#	Lead author	Institution	Title
1	Andrew Alamban	UA COM-Tucson	Cx37-13k fails to reproduce phenotypic effects of Cx37 in rat insulinoma cells but alters Cx37's hemichannel function when co-expressed
2	Jose Ek-Vitorin	UA COM-Tucson	A mutant mimicking an ischemic preconditioned phospho-form of Cx43 lacks Vj-gating
3	Brikena Hoxha	MWU	Manipulation of Caveolae by Methyl- $\beta$ -cyclodextrin in a Mouse Model of Marfan Syndrome
4	Ike Chinyere	UA COM-Tucson	Electrophysiologic Evaluation of Non-Ischemic Cardiomyopathy Models
5	Morgan Nelson	ASU	Evaluation of an organometallic complex on the development of cardiovascular disease risk following a 10-week high-fat diet
6	Kathleen Casey	ASU	The Effect of Exercise PreConditioning on VO <sub>2</sub> Peak and Lean Mass in Breast Cancer Patients Treated with Anthracyclines- A Preliminary Analyses
7	Adam Copeland	GCU	Correlation between heart rate variability and obesity
8	Charis Courtney	GCU	Heart rate variability: Physiological effects of anxiety and depression on autonomic nervous system
9	Breana Schiete	GCU	Gender Disparities in HRV Values Between Genders
10	Nafisa Jadavji	MWU	The role of nutrition on recovery after ischemic stroke using an aged mouse model
11	Ryan Eghlimi	ASU	Triple Negative Breast Cancer Detection Using LC-MS/MS Targeted Lipidomics
12	Layla Al-Nakkash	MWU	Dietary genistein and exercise offer sex-dependent benefits to jejunum function in a model of diet-induced diabetic obesity.
13	Alex Mohr	ASU	Assessing the potential of a soil-derived compound for the prevention of liver toxemia and protein glycation in rats fed a high-fat diet
14	Karen Sweazea	ASU	Effects of urbanization on morphology and nutritional physiology of Gambel's Quail, <i>Callipepla gambelii</i>
15	Karina Ahmadizadeh	MWU	Expression patterns of CRF-family peptides in the zebra finch brain
16	Xiaojian Shi	ASU	Database Assisted Globally Optimized Targeted Mass Spectrometry (dGOT-MS): Broad and Reliable Metabolomics Analysis with Enhanced Identification
17	Stav Talal	ASU	High carbohydrate diets increase respiratory quotients above 1 in locusts
18	Jordan Glass	ASU	Testing the limits: Physiological responses of honeybees ( <i>Apis mellifera</i> ) during flight in variable-density gases
19	Thomas Huck	NAU	Investigating the relationship between muscle force, activity, and activation in human triceps surae during obstacle negotiation
20	Anaissa Ruiz	ASU	Myosin Heavy Chain Isoform mRNA Expression in Low and High Capacity Running Rats

21	Zack Graham	ASI	The Offense and Defense of a Regenerated Weapon
22	Dhruv Mishra	NAU	X-ray diffraction analysis of nanometer-scale sarcomere structure before and after active and passive stretch in skinned fiber bundles of skeletal muscles from wild type and mdm mice.
23	Logan Kasper	UA COM-Tucson	Preoperative patient reported outcome measures are predictive of postoperative outcome at 2 years following Unicompartmental Knee Arthroplasty
24	Jesse Wealing	MWU	GIRK channels contribute to modulation of XII motoneuron excitability in neonatal mice in vitro
25	Hailang He	ASU	Metabolic profiling reveals attenuated mitochondrial function and enhanced glycolysis induced by BDE-47 in PC12 cells
26	Joaquin Lopez Rosales	UA COM-Tucson	Porcine NPE Releases through interaction of TRPV4 and hemichannels
27	Charles Vo	MWU	Characterization of effector ion channels that mediate excitatory cholinergic modulation of XII motoneurons in neonatal mice in vitro
28	Reem Faraj	UA COM-Phoenix	A Novel Role for SAMD4A in Endothelial Cell Barrier Regulation in Response to Simvastatin