



WEDNESDAY, JULY 24

12:00 – 18:00

Registration Desk

THURSDAY, JULY 25, MORNING

06:30 – 08:00 Plateia

Breakfast Buffet

07:00 – 18:00

Registration Desk

08:00 – 08:15 Centennial Ballroom A&B

Welcome to the Congress by the Chair of ISAN 2019

Kalyanam Shivkumar MD PhD Director, UCLA Cardiac Arrhythmia Center & EP Program, Los Angeles, CA, USA

08:15 – 09:00 Centennial Ballroom

Plenary Talk: Autonomic Circuitry Redefined and Targeted for Neuromodulation

Speaker:

John Furness PhD FAA FAHMS Florey Institute, University of Melbourne, Victoria, Australia

Introduction by:

Yvette Taché, PhD, Co-Chair ISAN 2019 UCLA, Los Angeles, CA

09:00 – 09:20

Break

Breakout Sessions

09:20 – 11:20 Centennial Ballroom A&B

Enteric Neural Circuitry in Mouse and Human Colon: The Changing Face of Morphology, Function and Therapeutic Leads

Chair: **Marthe Howard, PhD** University of Toledo Health Sciences Campus, Toledo, OH, USA

Speakers:

Marthe Howard PhD University of Toledo Health Sciences Campus, Toledo, OH, USA

Mice are not Guinea pigs: enteric neural circuitry – transmitters, transcriptomics, function and much more

Brian Davis PhD University of Pittsburgh, Pittsburgh, PA, USA

Don't believe everything you see: integration of colon extrinsic primary afferent information via spinal parasympathetic circuitry

Robert O Heuckeroth MD PhD The Children's Hospital of Philadelphia, Philadelphia, PA, USA

Visualizing the human enteric nervous system in 3-dimensions: new ways to think about autonomic neuropathy

Poi-Qing Yuan PhD UCLA and VA Greater Los Angeles, Los Angeles, CA, USA

Three- dimensional imaging and phenotype of intrinsic innervation of the human colon

Symposia-related featured abstracts – oral presentations 11:20 - 11:40

09:20 – 11:20 Legacy Room A&B

Into the Void: Autonomic Regulation of Urinary Continence and Micturition

Chair: **Peregrine Osborne PhD** University of Melbourne, Victoria, Australia

Speakers:

Michelle Southard-Smith PhD Vanderbilt University Medical Center, Nashville, TN, USA

Development of lower urinary tract autonomic innervation from sacral neural crest

Janet Keast, PhD University of Melbourne, Victoria, Australia

Visceral connectomes: spinal connectivity with lower urinary tract organs

Lisa Stowers, PhD Scripps Research, La Jolla, CA, USA

Brain control of voluntary voiding in the mouse

Marcus Drake MA DM University of Bristol, UK

How neural deficit relates to clinical dysfunction of the lower urinary tract

Symposia-related featured abstracts – oral presentations 11:20-11:40am

09:20 – 11:20 Optimist Room A&B

Autonomic Control of Inflammation - New Insights into Pathways and Mechanisms

Chairs:

Davide Martelli PhD University of Bologna, Bologna, Italy

Martin Stebbing PhD Foley Institute of Neuroscience and Mental Health, Victoria Australia

Speakers:

Paul O'Connor PhD Augusta University, Augusta, GA, USA

Evidence oral ingestion of sodium bicarbonate activates the cholinergic anti-inflammatory pathway via the mesothelium

Davide Martelli PhD University of Bologna, Bologna, Italy

The splanchnic anti-inflammatory pathway inhibits systemic inflammation acting on different abdominal organs

Colin Reardon PhD University of California Davis, Davis, CA, USA

Neuro-immune communication in mesenteric lymph nodes

Rainer Straub MD University Hospital, Regensburg, Germany

The sympathetic regulation of the spleen in the middle of arthritis

Symposia-related featured abstracts – oral presentations 11:20 – 11:40

09:20 – 11:20 Laureate Room

Mechanisms of Sympathetic Neurovascular Function and Control During Pregnancy - A Growing Field of Interest

Chair: **Craig Steinback PhD** University of Alberta, Edmonton Alberta, Canada

Speakers:

Virginia Brooks PhD Oregon Health & Science University, Portland, OR, USA

Neurovascular regulation and control in animal models of healthy pregnancy

Qi Fu MD PhD University of Texas Southwestern, Dallas, TX, USA

Population differences in sympathetic regulation during human pregnancy

Frank Spradley PhD University of Mississippi Medical Center, Jackson MS, USA

Mechanisms of altered adrenergic vascular control in models of preeclampsia

Craig Steinback PhD University of Alberta, Edmonton Alberta, Canada

Neurovascular regulation in complex human pregnancy

Symposia-related featured abstracts – oral presentations 11:20 - 11:40

11:20 – 11:45

Break

11:45 – 13:00 Centennial Ballroom C&D

Poster Viewing

11:45 – 13:00 Centennial Terrace

Lunch Buffet

THURSDAY JULY 25, AFTERNOON

13:00 – 13:45 Centennial Ballroom A&B

Plenary Talk: Autotoxicity: A New Paradigm to Explain Catecholaminergic Neurodegeneration in the Brain and Heart

Speaker: **David Goldstein MD PhD** Autonomic Medicine Section, CNP/DIR/NINDS, NIH, Bethesda MD, USA

Introduction by:

Kalyanam Shivkumar MD PhD, Chair ISAN 2019 Director, UCLA Cardiac Arrhythmia Center & EP Program, Los Angeles CA, USA

13:45 – 14:00

Break

Breakout Sessions

14:00 – 16:00 Centennial Ballroom A&B

The Neurobiology of Orthostatic Hypotension – A Clinical, Experimental and Preclinical Approach

Chair: **Roy Freeman MD** Harvard Medical School, Boston, MA, USA

Speakers:

Roy Freeman MD Harvard Medical School, Boston, MA, USA

Orthostatic hypotension - the clinical perspective

J. Andrew Taylor PhD Spaulding Rehabilitation Hospital; CV Research Lab, Cambridge MA, USA

Baroreflex dysfunction and blood pressure control - the human experimental perspective

Can Ozan Tan PhD Harvard Medical School, Boston, MA, USA

Cerebral blood flow and autonomic dysfunction – the human experimental perspective

Mark Chapleau PhD University of Iowa, Iowa City, IA, USA

Orthostatic hypotension – the preclinical perspective

Symposia-related featured abstracts – oral presentations 16:00 – 16:20

14:00 – 16:00 Legacy Room A&B

Neuron-Myocyte Interactions in Health and Disease

Chair: **Beth Habecker Ph** OHSU School of Medicine, Portland, OR, USA

Speakers:

David J. Paterson, DPhil Oxford University, Oxford, UK

Neuronal control of myocyte excitability in cardiovascular disease

Susan J. Birren PhD Brandeis University, Waltham, MA, USA

Development and function of the peripheral cardiac-sympathetic circuit

Marco Mongillo PhD University of Padova, Padova, Italy

Local bidirectional signaling at neuro-cardiac junctions

Johanna Montgomery PhD Department of Physiology, University of Auckland, Auckland, New Zealand
Plasticity in the intrinsic cardiac nervous system and its role in atrial fibrillation
Symposia-related featured abstracts – oral presentations 16:00 – 16:20

14:00 – 16:00 Optimist Room A&B

Autonomic Reflexes in Health and Disease: From Sensors to Circuits to Reflex

Chairs:

Mark W. Chapleau PhD University of Iowa, Iowa City, IA, USA

Lucy Norcliffe-Kaufmann PhD NYU School of Medicine, New York, NY, USA

Speakers:

Silvia Conde PhD CEDOC, NOVA Medical School, Lisbon, Portugal

Carotid body and insulin sensing: Implications for metabolic diseases

Wei-Zheng Zeng PhD The Scripps Research Institute, La Jolla, CA, USA

Piezo channels mediate baroreceptor mechano-transduction and the baroreflex

Rui B. Chang PhD Yale University School of Medicine, New Haven, CT

Molecular and functional dissection of vagal heart-to-brain circuits

Robert A. Larson MS PhD University of Iowa Carver College of Medicine, Iowa City, IA, USA

Targeting cardiac sensory neurons and reflexes in hypertrophic cardiomyopathy

Symposia-related featured abstracts – oral presentations 16:00 – 16:20

14:00 – 16:00 Laureate Room

Cardiac EP Symposia

Chair and Speakers to be confirmed

Symposia-related featured abstracts – oral presentations 16:00 – 16:20

16:00 – 17:30 Centennial Ballroom C&D

Poster Viewing and Judging (judging from 16:30 – 17:30)

17:30 – 17:50 Centennial Ballroom A&B

ISAN Members' Meeting

Chair: **Bruno Bonaz MD PhD, President ISAN** CHU Grenoble-Alpes, Grenoble , France

18:00 – 21:00 Terrace Deck

Conference Dinner (ticketed - \$80 per person)

FRIDAY JULY 26, MORNING

06:30 – 08:00 Plateia

Breakfast Buffet

07:00 – 18:00

Registration Desk

08:00 – 08:15 Centennial Ballroom A&B

Awards for Best Abstract Submissions

Yvette Taché PhD, Co-Chair ISAN 2019, UCLA, Los Angeles, CA, USA

08:15 – 09:00 Centennial Ballroom A&B

Plenary Talk: The Exercise Pressor Reflex in Health and Simulated Peripheral Artery Disease

Speaker: Marc Kaufman PhD Penn State College of Medicine, Hershey, PA, USA

Introduced by: **Bill Farquhar PhD** University of Delaware

09:00 – 17:00 Odyssey and Pathways Rooms

SPARC Data Resource Center Hands on Experience

09:00 – 09:20

Break

Breakout Sessions

09:20 – 11:20 Laureate Room

Recent Advances in Exercise Pressor Reflex Function in Health and Disease

Chair: **Marc Kaufman PhD** Penn State Hershey Medical Center, Hershey, PA, USA

Speakers:

Bill Farquhar PhD University of Delaware, Newark, DE, USA

Exaggerated exercise pressor reflex function in hypertension and the role of dietary salt

Vaughan Macefield PhD University of Melbourne, Victoria, Australia

The contributions of central command and the metaboreflex to the sympathetic control of blood flow in contracting muscle

Audrey Stone PhD: University of Texas at Austin, Austin, TX, USA

Exercise pressor reflex function in diabetes

Donal O'Leary PhD Wayne State University, Detroit, MI, USA

Altered muscle metaboreflex-arterial baroreflex interaction in heart failure

Symposia-related featured abstracts – oral presentations 11:20 – 11:40

09:20 – 11:20 Legacy Room A&B

Multiple System Atrophy: A Disease Centrally Affecting the Autonomic Nervous System

Chairs:

Eduardo E Benarroch MD Mayo Clinic, Rochester, MN, USA

Ryuji Sakakibara MD PhD Toho University Sakura Medical Center, Sakura, Japan

Speakers:

Ryuji Sakakibara MD PhD Toho University Sakura Medical Center, Sakura, Japan

Overview of multiple system atrophy

Eduardo E Benarroch MD Mayo Clinic, Rochester, MN

Autonomic pathology of multiple system atrophy

Horacio Kaufmann MD New York University Langone Health, New York, NY, USA

Autonomic cardiovascular disorder in multiple system atrophy

Tatsuya Yamamoto MD Chiba University, Chiba, Japan

Autonomic bladder disorder in multiple system atrophy

Symposia-related featured abstracts – oral presentations 11:20 – 11:40

09:20 – 11:20 Optimist Room A&B

Autonomic Modulation of Cardiac Arrhythmias

Chair: **Olujimi Ajjola MD PhD** UCLA, Los Angeles, CA, USA

Speakers:

Neil Herring MD DPhil University of Oxford, Oxford, UK

Role of sympathetic co-transmitters in cardiac disease and ventricular function

Crystal Ripplinger PhD UC Davis School of Medicine, Davis, CA, USA

Sympathetic innervation and myocardial infarction

Dominik Linz MD PhD The University of Adelaide and Royal Adelaide Hospital, Adelaide, Australia

Autonomic modulation for atrial fibrillation

Stavros Stavrakis MD PhD University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA

Tragus nerve stimulation for modulation of cardiac arrhythmias

Stavros Stavrakis MD PhD University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA

Tragus nerve stimulation for modulation of cardiac arrhythmias

Symposia-related featured abstracts – oral presentations 11:20 – 11:40

09:20 – 11:20 Centennial Ballroom A&B

SPARC Data Resource Center Portal Roll Out

Chair: **Andrew Weitz PhD** National Institutes of Health, Bethesda, MD, USA

Speakers:

Andrew Weitz PhD

Overview of SPARC DRC: objectives and opportunities

Joost Wagenaar PhD Blackfynn, Philadelphia, PA, USA

Blackfynn and SPARC as a model for sustainability in science

Peter Hunter PhD University of Auckland, Auckland, New Zealand

Visual exploration of the autonomic nervous system

Esra Neufeld PhD IT'IS Foundation, Zurich, Switzerland

The o2S2PARC modeling & simulation platform: vision and demo

Q&A Panel Discussion

11:20 – 11:45

Break

11:45 – 13:00 Centennial Ballroom C&D

Poster Viewing – Session I: Anatomical and Functional Characterization of Autonomic Neural Networks for Organ Control

11:45 – 13:00 Centennial Terrace

Lunch Buffet

FRIDAY JULY 26, AFTERNOON

13:00 – 13:45 Centennial Ballroom A&B

Plenary Talk: Neuromodulation Focused Therapeutics for Cardiac Disease: Structure/Function Foundations

Speaker: **Jeffrey Ardell PhD, Co-Chair ISAN 2019** UCLA Cardiac Arrhythmia Center, UCLA, Los Angeles CA, USA

Introduced by: **Irving Zucker PhD** University of Nebraska Medical Center, Omaha, NE, USA

13:45 – 14:00

Break

Breakout Sessions

14:00 – 16:00 Centennial Ballroom A&B

Sympatho-Excitatory Afferent Reflexes in Cardiovascular Disease

Chairs:

Marmar Vaseghi MD PhD UCLA, Los Angeles, CA, USA

Irving Zucker PhD University of Nebraska Medical Center, Omaha, NE, USA

Speakers:

Hanjun Wang MD University of Nebraska Medical Center, Omaha, NE, USA

Cardiopulmonary spinal afferents; Their role in heart failure

John Osborn PhD University of Minnesota, Minneapolis, MN, USA

Renal afferents and inflammation in hypertension

Rodrigo del Rio PhD Pontificia Universidad Católica de Chile, Santiago, Chile

Chemoreception and sympathetic outflow in heart failure

Gisele Lincevicius PhD Physiology University, Sao Paulo, Brazil

Carotid body recruitment in renovascular hypertension: role for renal afferents and mineralocorticoid receptors

Symposia-related featured abstracts – oral presentations 16:00 – 16:20

14:00 – 16:00 Legacy Room A&B

Preclinical and Clinical Advances in Parasympathetic Cholinergic Modulation for Treating Inflammatory and Metabolic Disorders

Chairs:

Bruno Bonaz MD PhD CHU Grenoble-Alpes, Grenoble, France

Valentin Pavlov PhD Feinstein Institute for Medical Research, Manhasset, NY, USA

Speakers:

Valentin Pavlov PhD Feinstein Institute for Medical Research, Manhasset, NY, USA

Recent insights into cholinergic regulation of inflammation and its clinical relevance in obesity-driven disorders

Bruno Bonaz MD PhD CHU Grenoble-Alpes, Grenoble, France

The vagus nerve at the interface of the brain-gut neuroimmune axis: clinical implications

Cyndya Shibao MD Vanderbilt University, Nashville, TN, USA

Novel findings in cholinergic modulation of oxidative stress in obese African Americans and its potential therapeutic use

Hermona Soreq PhD The Hebrew University of Jerusalem, Jerusalem, Israel

Carving the molecular landscape of cholinergic signalling in anxiety and metabolic stresses

Symposia-related featured abstracts – oral presentations 16:00 – 16:20

14:00 – 16:00 Optimist Room A&B

New Advances in Autonomic Nerve Targeting for Treatment of Immune, Metabolic and Renal Disease

Chair: **Stephen Lewis PhD** Case Western Reserve University, Cleveland, OH, USA

Speakers:

Jay Pasricha MD Johns Hopkins University, Baltimore, USA

Greater splanchnic nerve modulation and its impact on metabolic syndrome animal models

Philippe Blancou PhD Institut de Pharmacologie Moléculaire et Cellulaire, Nice, France

Treating type 1 diabetes by pancreatic nerve electrostimulation

Thomas Simon PhD Institut de Pharmacologie Moléculaire et Cellulaire, Nice, France

Apical splenic nerve electrical stimulation discloses a novel T cell independent anti-inflammatory pathway

Jacqueline Phillips DVM PhD Macquarie University, Sydney, Australia

Modulation of reno-renal reflex and its potential impact on chronic kidney disease

Symposia-related featured abstracts – oral presentations 16:00 – 16:20

14:00 – 16:00 Laureate Room

Conceptualization to Commercialization for Neuromodulation IP

Chairs:

Kalyanam Shivkumar MD PhD, Chair ISAN 2019 Director, UCLA Cardiac Arrhythmia Center and EP Program, Los Angeles, CA, USA

Emily Loughran MBA Senior Director of Licensing and Strategic Alliances, UCLA, Los Angeles, CA, USA

Speakers to be confirmed

16:00 – 17:00 Centennial Ballroom C&D

Poster Viewing – Session II: Anatomical and Functional Characterization of Autonomic Neural Networks for Organ Control

FRIDAY JULY 26, EVENING

17:15 – 18:00 Centennial Ballroom A&B

SPARC Plenary Talk – Neuromodulation and Robustness to Perturbation of Rhythmic Circuit

Speaker: **Eve Marder PhD** Professor of Biology, Brandeis University, Waltham, MA, USA

Introduction by: **Joseph Margiotta PhD** University of Toledo, OH, USA

18:00 – 19:00 Centennial Ballroom A&B

SPARC PI Meeting

Chair: **Gene Civillico PhD NIH** SPARC Program Manager, NIH, Bethesda, MD, USA

SATURDAY JULY 27, MORNING

06:30 – 08:00 Plateia

Breakfast Buffet

07:00 – 18:00

Registration Desk

08:00 – 08:15 Centennial Ballroom A&B

Welcome to Day 3

Chair: **Gene Civillico PhD NIH** SPARC Program Manager, NIH, Bethesda, MD, USA

08:15 – 10:15 Centennial Ballroom A&B

SPARC-ISAN Career Launcher Symposia

Chair: **Gene Civillico, PhD NIH** SPARC Program Manager, NIH, Bethesda, MD

Speakers:

Kristen Smith-Edwards, PhD University of Pittsburgh, Pittsburgh, PA, USA

Mapping intrinsic and extrinsic enteric circuits using optogenetic tools in vivo and ex vivo

Hongrong Yang, PhD Northeastern University, Boston, MA, USA

Optical nanosensor for imaging acetylcholine in the peripheral nervous system

Seoeun Lee, BS Columbia University, New York, NY, USA

Molecular characterization of distinct neuronal populations in stellate ganglia

Yehe Liu, BS/MS Case Western Reserve University, Cleveland OH, USA

Easier 3D Imaging

Maria Jantz, BS University of Pittsburgh, Pittsburgh, PA, USA

Epidural spinal cord stimulation for selective activation of lower urinary tract nerves

Pradeep Rajendran, PhD UCLA, Los Angeles, CA, USA

Identification of peripheral neural circuits that regulate heart rate using optogenetic and viral vector strategies

10:15 – 17:00 Innovation Room

SPARC Technology Showcase

10:15 – 17:00 Odyssey & Pathways Rooms

SPARC Data Resource Center Hands on Experience

10:15 – 10:40

Break

Breakout Sessions

10:40 – 11:40 Centennial Ballroom A&B

SPARC: Technology Showcase I

Chair: **Michael Wolfson PhD** NIH, Bethesda, MD, USA

Speakers:

Chris Towne PhD Circuit Therapeutics, Mountain View, CA, USA

Transdermal Light-Activated Gene Therapy for Pain

Tiago Costa PhD Columbia University, New York, NY, USA (Kenneth Shepard **PhD**, primary author)

2D ultrasound phased array and driving electronics in a single wearable chip for stimulation of the peripheral nervous system

Gregory Futia MS University of Colorado, Denver, CO, USA (John Caldwell **PhD**, primary author)

Bidirectional minimally invasive optogenetic peripheral nerve interface

Larry Miller MD Feinstein Institute for Medical Research, Manhasset, NY, USA

Using the gastrointestinal tract as a window to the autonomic nervous system: Transesophageal imaging and access of the vagus Nerve

10:40 – 11:40 Laureate Room

Structure-function: cardiorespiratory control

Chair: **Michael Andresen PhD** OHSU School of Medicine, Portland, OR, USA

Speakers:

Thomas Taylor-Clark PhD University of South Florida, Tampa, FL, USA

Mapping of vagal afferent subsets - peripheral terminals within the lungs and central terminals within the medulla

Xin Sun PhD UCSD, San Diego, CA, USA

Mapping of the neural circuits that control intrinsic lung function

Don Bolser PhD University of Florida, Gainesville, FL, USA

Network-scale interactions among simultaneously recorded brainstem neurons in the dorsal and ventrolateral medulla: A substrate for central autonomic control and processing of cardiorespiratory afferent feedback by reverberant circuits

Kendall Morris PhD University of South Florida, Tampa, FL, USA

Computer simulations and dynamic visualizations of results from cluster analysis of respiratory neuronal discharge patterns

10:40 – 11:40 Optimist Room A&B

Peripheral neuromodulation for pain and withdrawal

Chair: **Felicia Qashu PhD** NIH SPARC Program, NIH Bethesda, MD, USA

Speakers and titles to be confirmed

10:40 – 11:40 Legacy Room A&B

Foundational aspects for peripheral neuromodulation

Chair: **Marmar Vaseghi, MD PhD** UCLA, Los Angeles, CA, USA

Speakers:

Nicole Pelot BS Duke University, Durham, NC, USA

Modeling activation of autonomic nerves for analysis and design

Matthew Ward PhD Purdue University, West Lafayette, IN, USA (Terry Powley **PhD**, primary author)

An artificial intelligence framework for classifying nerve function through morphometry, neural tracing and the graded compound nerve action potential

Eric Musselman BS Duke University, Durham, NC, USA

Interspecies scaling of cervical vagus nerve stimulation parameters

Guillermo Monroy PhD FDA Silver Springs, MD, USA

Optical coherence tomography as a versatile tool to observe and quantify electrostimulation induced peripheral nerve injury

11:45 – 13:00 Centennial Ballroom C&D

Poster Viewing – Session I: Mapping and Neuromodulation Technologies, Models and Modeling

12:00 – 13:00 Centennial Terrace

Lunch Buffet

SATURDAY JULY 27, AFTERNOON

13:00 – 14:00 Centennial Ballroom A&B

Structure-Function: pelvic neural pathways and urinary control

Chair: **Peregrine Osborne PhD** University of Melbourne, Parkville, VIC Australia

Speakers:

Nicole Wiedmann PhD University of Melbourne, Parkville, VIC Australia (Peregrine Osborne **PhD**, primary author)

Mapping and characterization of lumbosacral spinal neurons activated by voiding and electrical stimulation of the pelvic nerve in awake rats

Clara Huesing BS Pennington Biomedical Research Center, Baton Rouge, LA USA

Pre- and postganglionic sympathetic tracing of inguinal white adipose tissue innervation in adult mice

Esther Ji MSD University of Melbourne, Parkville, VIC Australia (Janet Keast **PhD**, primary author)

Regional changes in peptidergic sensory and cholinergic autonomic innervation of the vasculature and epithelium of the urethra in female rats

April Herrity DC PhD University of Louisville, Louisville, KY, USA

Targeting urinary continence with epidural stimulation after human spinal cord injury

13:00 – 14:00 Laureate Room

SPARC: Technology Showcase II

Chair: **Andrew Weitz, PhD** NIH Bethesda, MD, USA

Speakers:

Bhavesh Patel PhD California Medical Innovations Institute, San Diego, CA, USA

Fecobionics technology for mapping colorectal stress and deformation patterns

Kirill Aristovich PhD University College London, London, UK

EIT imaging and selective neuromodulation in complex autonomic nerves with multielectrode cuff arrays

Junqi Zhuo BS Case Western Reserve University, Cleveland, OH, USA (Michael Jenkins **PhD**, primary author)

Infrared neuromodulation (IRN) in the peripheral nervous system

Bartek Rajwa PhD Purdue University, West Lafayette, IN, USA

Cloud-computing analytics for neurohistology: a development of "Spat-An-App", a spatial statistical analysis workflow

13:00 – 14:00 Optimist Room A&B

Neuromodulation of GI function and anti-inflammatory effects

Chair: **Charles Horn, PhD** University of Pittsburgh, Pittsburgh, PA, USA

Speakers:

Martin Stebbing PhD Florey Institute, Parkville, VIC, Australia

Responses to an acute intraluminal inflammatory stimulus in afferent and efferent extrinsic nerves innervating the rat small intestine recorded in vivo

Sophie Payne PhD Bionics Institute East Melbourne VIC Australia

Abdominal vagal nerve stimulation relieves inflammation of the rat small intestine

Kun-Han Lu BS Purdue University, West Lafayette, IN, USA

Differential effects of afferent and efferent vagus nerve stimulation on gastric motility assessed with magnetic resonance imaging

Jiande Chen PhD Johns Hopkins University, Baltimore, MD, USA

Improving gastric accommodation by spinal cord stimulation in canine

13:00 – 14:00 Legacy Room A&B

Structure-Function: autonomic control of proximal colon

Chair: **Marthe Howard, PhD** University of Toledo, Toledo, OH, USA

Speakers:

Catia Sternini MD UCLA, Los Angeles, CA, USA

Characterization of Enteric Neurons in Different Segments of the Porcine Colon

Dante Heredia BS University of Nevada, Reno, NV, USA

Genetically encoded tools for examining patterns of myenteric activity responsible for modulating the murine CMMC

Rachel M Gwynne BS University of Melbourne, Parkville, VIC Australia (Joel Bornstein **PhD**, primary author)

5-HT₃ receptors mediate some fast excitatory synaptic potentials in excitatory motor neurons and inhibitory motor neurons in mouse proximal colon

Joel Bornstein PhD University of Melbourne, Parkville, VIC Australia

Novel inhibitory post-synaptic potentials in mouse proximal colon myenteric neurons – a role for nitric oxide

14:10 – 15:10 Centennial Ballroom A&B

Intrathoracic autonomic neural networks and cardiac control

Chair: **Colleen Clancy, PhD** University of California Davis, Davis, CA, USA

Speakers:

John Tompkins PhD UCLA, Los Angeles, CA, USA

Structure and function of single cells from stellate and intrinsic cardiac ganglia

Mark Doyle PhD OHSU School of Medicine, Portland, OR, USA (Michael Andresen **PhD**, primary author)

Cardiac nerve synaptic events in mouse stellate ganglion suggests cholinergic collaterals.

Alison Moss BS Thomas Jefferson University, Philadelphia, PA, USA (Rajanikanth Vadigepalli **PhD**, primary author)

Discovering molecular phenotype gradients and markers within the Rat ICN

Guy Salama PhD University of Pittsburgh, Pittsburgh, PA, USA

Autonomic activity generates regional heterogeneities of Ca²⁺ transients and excitation-contraction coupling in rabbit ventricles

14:10 – 15:10 Laureate Room

SPARC: Technology Showcase III

Chair: **Michael Jenkins PhD** Case Western Reserve University, Cleveland, OH, USA

Speakers:

Arjun Fontaine PhD U Colorado Denver, Denver, CO, USA

Optogenetic stimulation of pancreatic function via vagal cholinergic axons

Sarah Stanley PhD Mount Sinai, New York, NY, USA

Tools for remote modulation of peripheral nerves innervating the pancreas

Joseph Canzano BS University of Florida, Gainesville, FL, USA

In vivo two-photon imaging of sympathetic and parasympathetic neuromodulation of pancreatic microvessels

Dennis Bourbeau PhD Cleveland FES Center, Cleveland, OH USA (Aref Smiley **PhD**, primary author)

Wireless real-time sensor platform for monitoring bowel state and function

14:10 – 15:10 Optimist Room A&B

Autonomic control of respiration function

Chair: **Don Bolser PhD** University of Florida, Gainesville, FL, USA

Speakers:

Gregory A. Coffee MS Case Western Reserve University, Cleveland, OH, USA (Stephen Lewis **PhD**, primary author)

Ganglioglomerular nerve regulation of carotid body responses to hypoxic-gas challenge in juvenile rats

Leah Reznikov PhD University of Florida, Gainesville, FL, USA

Acute airway acidification modifies mucus secretion and transport properties

Gjinovefa Kola MD Case Western Reserve University, Cleveland, OH, USA (Stephen Lewis **PhD**, primary author)

Superior cervical ganglionectomy affects the cardiorespiratory network of the in situ arterially perfused brainstem preparation

Yee-Hsee Hsieh PhD Case Western Reserve University, Cleveland, OH, USA (Stephen Lewis **PhD**, primary author)

Effect of cervical sympathetic chain stimulation on upper airway pressure is reproduced by internal carotid nerve stimulation

14:10 – 15:10 Legacy Room A&B

Enteric neural networks and control of GI function

Chair: **John Furness, PhD FAA FAHMS** Florey Institute, University of Melbourne, VIC, Australia

Speakers:

Simon Brookes PhD Flinders University, Adelaide, South Australia, Australia

Characterization of ascending interneuronal pathways in myenteric plexus of human colon

Parvin Zarei Eskikand PhD University of Melbourne, Parkville, VIC, Australia (primary author Joel Bornstein **PhD**, primary author)

Computational models of synaptic interactions in enteric nervous system reveal anomalous inhibition from depolarizing synapses

Joel Bornstein PhD University of Melbourne, Parkville, VIC, Australia

Correlation of firing properties and function of myenteric neurons in mouse proximal colon: modeling differential expression of ion channels

Kun-Han Lu BS MS Purdue University, West Lafayette, IN, USA

Vagus nerve stimulation promotes gastric emptying by increasing pyloric opening measured with magnetic resonance imaging

15:10 – 13:40

Break

15:30 – 17:00 Centennial Ballroom C&D

Poster Viewing – Session II: Mapping and Neuromodulation Technologies, Models and Modeling

17:15 – 17:30 Centennial Ballroom A&B

Closing Remarks ISAN-SPARC 2019

Speakers:

Gene Civillico PhD NIH SPARC Program Manager, NIH, Bethesda, MD, USA

Kalyanam Shivkumar MD PhD, Chair ISAN 2019, Director, UCLA Cardiac Arrhythmia Center & EP Program, Los Angeles, CA, USA