



**XXth Meeting of the
International Society of Arterial Chemoreception (ISAC)**

July 23-27, 2017

JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD

**Making Sense Out of Sensing Hypoxia:
New Directions and Translational Perspectives throughout the
Lifespan**

ISAC 2017 Organizing Committee:

Estelle B. Gauda, M.D.
Professor of Pediatrics
President, ISAC 2014-2017
Johns Hopkins University School of Medicine

Nanduri Prabhakar, Ph.D, D. Sc
Harold Hines Professor of Medicine
Director, Institute for Integrative Physiology & Center for Systems Biology of oxygen sensing
University of Chicago

Harold Schultz, Ph.D
Professor of Physiology
Department of Cellular and Integrative Physiology
University of Nebraska College of Medicine

Chris Wyatt, Ph.D
Associate Professor of Neuroscience, Cell Biology and Physiology
Wright University

2017 ISAC CONFERENCE PROGRAMME

Sunday, July 23, 2017

4:00	Registration - Charles Commons, Johns Hopkins University
	Welcome Remarks <i>E. B. Gauda, President ISAC XX 2017</i>
Time TBA	Opening Reception with Dinner <ul style="list-style-type: none"> ◆ Tribute to Constancio González, M.D., Ph.D. (1949-2015) <i>N. Prabhakar</i>

Monday, July 24, 2017

7:15-8:10	Breakfast (Posters to be placed on poster boards)
8:15	Open Remarks and Housekeeping <i>E. B. Gauda</i>
8:30-9:30	Keynote Speaker: Role of the Hypoxia-Inducible Factors in the Carotid Body <i>G. Semenza; 2016 Lasker Awardee</i>

Session 1: Molecular Responses to Hypoxia - New Perspectives

Chair: C. Wyatt

ORAL PRESENTATION

9:30-9:45	Dopamine and Histamine Inhibit Purinergic Calcium Signaling in Type II Cells of the Rat Carotid Body <i>E. M. Leonard, C. A. Nurse</i>
9:45-10:00	A Novel Index of Steady-State Respiratory Chemoreflex Drive During Incremental Ascent to High Altitude: Relationship to Acute Mountain Sickness <i>J. R. Pfoh, C. D. Bruce, E. R. Vanden Berg, E. M. de Freitas, K. Borle, L. R. Lavoie, G. Saran, A. Linares, R. Brandt, K. Tjandra, T. A. Day</i>
10:00-10:15	Hypoxia Regulates MicroRNA Expression in the Human Carotid Body <i>S. Mkrтчian, K. L. Lee, J. Kåhlin, A. Ebberyd, L. Poellinger, M. Jonsson Fagerlund, L. I. Eriksson</i>
10:15-10:30	Spinal Oxygen Sensors (SOS) - The Lost Central Cardiovascular Oxygen Sensor? <i>N. Barioni, F. Derakhshan, A. Roy, M. Baghdadwala, F. B. McDonald, E. C. Scheibli, M. B. Harris, M. Dutschmann, R. J. A. Wilson</i>
10:45-11:15	Coffee Break and Poster Viewing

Session 2: Central Chemoreception - Oxygen

Chair: R. Wilson

11:15-12:15	Plenary Lecture: Oxygen Sensing in the Central Respiratory Network: Relevance to Disordered Breathing and Cardiorespiratory Control <i>J. M. Ramirez</i>
ORAL PRESENTATION	
12:15-12:30	CNS Mechanisms of Cardiorespiratory Homeostasis During Hypoxia in Conscious Rats <i>I. C. Wenker, R. L. Stornetta, P. G. Guyenet</i>
12:30-12:45	Pro-Inflammatory Cytokines in the Nucleus of the Solitary Tract of Hypertensive Rats Exposed to Chronic Intermittent Hypoxia <i>M. P. Oyarce, R. Iturriaga</i>
12:45-13:00	Acute Hypoxia Reveals a Developmentally-Inhibited Rhythm Generator for Lung Breathing in Pre-Metamorphic Tadpole Brainstem Preparations <i>T. A. Janes, J. P. Rousseau, S. Fournier, R. Kinkead</i>
13:05-13:55	Lunch - Charles Commons
Session 3: Hypoxia Sensing in the Carotid Body - New Directions <i>Chair: TBA</i>	
14:00-15:00	Plenary Lecture: Oxygen Sensing: A Rattlebag of Molecular Mechanisms <i>C. Wyatt</i>
ORAL PRESENTATION	
15:00-15:15	Evidence for Dopaminergic Inhibitory Cell-Cell Interactions in the Rat Carotid Body <i>E. M. Leonard, C. A. Nurse</i>
15:15-15:30	Cysteine Oxidation in the Underlying Pathophysiological Mechanisms of Kidney Fibrosis Induced by Chronic Intermittent Hypoxia <i>N. R. Coelho, S. A. Pereira, M. Correia, A. R. Lemos, C. G. Dias, E. C. Monteiro, L. N. Diogo</i>
15:30-15:45	Molecular Characterization and Localization of Ectonucleotidases in the Rat Carotid Body: Regulation by Chronic Hypoxia <i>S. Salman, C. Vollmer, G. B. McClelland, C. A. Nurse</i>
15:45-17:00	Coffee and Poster Viewing
18:00-20:30	Evening Dinner Group: Crab Feast BO BROOKS Restaurant, Baltimore, Maryland
Tuesday, July 25, 2017	
7:15-8:10	Breakfast
8:10-8:15	Housekeeping

SESSION 4: (Mal)adaptive Responses to hypoxia - New Perspectives*Chair: E. Olea***8:15-9:15****Plenary Lecture:****Epigenetics Regulation of Carotid Body Oxygen Sensing: Physiological Consequences from Fetus to Adult***J. Nanduri***ORAL PRESENTATION****9:15-9:30****Carotid Body Long-Term Facilitation Without CIH Preconditioning: Primarily a Post-Synaptic Mechanism Involving Phosphorylation of TRPV1 and other Post-Synaptic Receptors, Independent of H₂O₂***A. Roy, R. J. A. Wilson***9:30-9:45****Contribution of Relative leptin and adiponectin deficiencies to chronic intermittent hypoxia in premature infants***E. B. Gauda, A. Mason, E. Paragon, M. K. Shin, S. Polotsky***9:45-10:00****A New Role of Chronic Intermittent Hypoxia on Pathology: Spontaneous Tumorigenesis and Consequences***M. T. Gallego-Martin, E. Gonzalez-Obeso, E. Olea, I. Docio, A Rocher, A. Obeso***10:00-10:30**

Coffee Break and Poster viewing

Session 5: Role of the Chemoreception in Disease – New Perspectives*Chair: J. Kählin***10:30-11:30****Plenary Lecture:****Translating Carotid Body Function in Clinical Medicine***R. Iturriaga***ORAL PRESENTATION****11:30-11:45****Lysophosphatidic Acid Stimulates the Carotid Body: Linking Inflammation and Carotid Sinus Nerve Activity***N. G. Jendzjowsky, A. Roy, R. J. A. Wilson***11:45-12:00****Carotid Sinus Nerve Resection Decreases Weight Gain and Fat Mass in a Rodent Model of Obesity***B. F. Melo, C. S. Prego, M. C. Correia, M. D. Cabral, J. F. Sacramento, S. V. Conde***12:00-12:15****Overactivation of Carotid Sinus Nerve Activity in High-Fat Animals is Mediated by A₂ Adenosine Receptors***J. F. Sacramento, J. Prieto-Lloret, S. V. Conde***12:15-12:30****Therapeutic Targeting of Carotid Body for Treating Sleep Apnea in a Pre-Clinical Model***Y-J. Peng, X. Zhang, I. Chupikova, A. Gridina, J. Nanduri, S. H. Snyder, D. McCormick, M. Muzzio, N. R. Prabhakar***12:30-13:30**

Lunch

Session 6: Role of Chemoreception in Disease – New Directions*Chair: S. Conde*

13:30-14:30	Plenary Lecture: What Else Do the Carotid Bodies Do? <i>M. Joyner</i>
ORAL PRESENTATION	
14:30-14:45	Contrasting Effects of Acute and Chronic Progesterone Administration on Apnea Frequency in Newborn Male and Female Rats <i>N. P. Uppari, H. Kouchi, V. Joseph, A. Bairam</i>
14:45-15:00	Erythropoietin Protects Against the Stress-Related Respiratory Dysfunction in Mice: Neural Control of Ventilation and Sex Dimorphism <i>E. Elliot-Portal, R. Kinkead, J. Soliz</i>
15:00-15:15	Leptin Increases Blood Pressure Acting in the Carotid Body <i>M. K. Shin, C. Caballero, W-Y. Tang, B. Yeung, J. Sham, M. Shirahata, V. Y. Polotsky</i>
15:15-16:30	Coffee and Poster Viewing
16:30-17:30	Business Meeting
	Free Evening – Dinner on your own: Areas of city to go: Fells Point, Inner Harbor, Harbor East, Canton or Charles Village – area outside Charles Commons.

Wednesday, July 26, 2017

9:30-20:30	Site Seeing Group Activity (Washington DC and Dinner) <ul style="list-style-type: none"> ◆ 9:30 - Meet at bus: Charles Commons, ◆ To Washington, Mall – Museums, Galleries- free admission ◆ 17:30 - Meet at bus in DC 18:15-20:30 – Sequoia Restaurant on the Potomac River, Washington, DC Happy Hour followed by Dinner
------------	--

Thursday, July 27, 2017

8:15-9:00	Breakfast
-----------	-----------

Session 7: Role of Chemoreception in Disease - Early Development

Chair: A. Bairam

9:00-10:00	Plenary Lecture: Peripheral and Central Chemoreceptors in Sudden Infant Death Syndrome <i>A. Pozionato</i>
ORAL PRESENTATION	
10:00-10:15	Divergent Effects of Myo-Inositol on Respiratory Neural Control During Postnatal Development <i>P. M. MacFarlane, J. M. Di Fiore, R.J. Martin, A. Mayer, I. R. Bederman</i>
10:15-10:30	Protection from SIDS: Perhaps it is in the Milk <i>E. B. Gauda</i>
10:30-11:15	Coffee and Poster Viewing

Session 8: Role of Chemoreception in Disease - Aging

Chair: H. Schultz

11:15-12:15

Plenary Lecture:
The Carotid Body with Aging and Inflammation
C. Di Giulio

12:15-13:15

Lunch and Poster Viewing

SESSION 9: Central Chemoreception - Carbon Dioxide

Chair: E. Monteiro

13:30-14:30

Plenary Lecture:
Homeostatic regulation of arterial PCO₂: neural circuits and molecular mechanisms of CO₂ sensing
P. Guyenet

SESSION 10: Molecular Responses to Hypercapnia - New Directions

Chair: R. Iturriaga

14:45-15:45

Plenary Lecture:
Hypercapnia Interaction with HIF Adaptive Responses to Hypoxia
C. Taylor

16:00-16:10

Announcements by Estelle Gauda, MD
Organizing Committee meet to select award recipients for De Castro, Heyman, Neil Award

16:10-18:30

Free Time

18:30

Coach Bus - Leaves from Charles Commons for Peabody Library for GALA

19:00-19:30

Pre-Dinner Reception

19:30-20:30

GALA – Peabody Library Johns Hopkins University

Tribute to Machiko Shirahata, M.D. (1950-2016)
J. Sham

Machiko Shirahata ISAC Trainee Travel Awardees:
Recognition of awardees by Estelle Gauda, M.D and Seva Polostky, M.D., Ph.,D

De Castro Awards – presentation of certificates