

# 27<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON THE AUTONOMIC NERVOUS SYSTEM

**Manchester Grand Hyatt  
San Diego, California  
November 2-5, 2016**

## Preliminary Program

<b>WEDNESDAY, NOVEMBER 2, 2016</b>	
7:30 AM-5:30 PM	<b>AUTONOMIC DISORDERS WORKSHOP FOR GENERALISTS</b> Coronado AB (separate registration required)
1:00-5:00 PM	<b>UCNS AUTONOMIC DISORDERS CERTIFYING EXAMINATION REVIEW COURSE</b> Marina Room (separate registration required)
6:30-7:30 PM	<b>REGISTRATION</b> Coronado Foyer
7:30-9:00 PM	<b>POSTER SESSION I</b> Coronado CDE
<b>THURSDAY, NOVEMBER 3, 2016</b>	
8:00-8:30 AM	<b>CONTINENTAL BREAKFAST</b> Coronado CDE
8:30-9:30 AM	<b>Plenary Lecture</b> Influences of female reproductive hormones on regulation of body temperature and blood pressure in humans <u>Nisha Charkoudian, Ph.D.</u> Natick, MA, USA <b>Chair: Qi Fu</b> Coronado AB
<b>SESSION 1: AUTOIMMUNE AUTONOMIC NEUROPATHY SYMPOSIUM</b> <b>SPONSORED BY NuFACTOR</b> <b>Chairs: Chris Gibbons &amp; Wolfgang Singer</b> <b>Coronado AB</b>	
9:30-10:00 AM	<b>Invited Expert Speaker</b> Autoimmune autonomic disorders <u>Steve Vernino, M.D., Ph.D.</u> Dallas, TX, USA

10:00-10:15 AM	<b>AAS-Lundbeck Travel Fellowship Award</b> Dysautonomia due to ganglionic nicotinic acetylcholine receptor autoimmunity J.K. Cutsforth-Gregory, E.A. Coon, D.M. Sletten, A. McKeon, M. Suarez, P. Sandroni, W. Singer, E.E. Benarroch, R.D. Fealey, P.A. Low Rochester, MN, USA
10:15-10:30 AM	Seronegative autoimmune autonomic neuropathy is clinically distinct from autoimmune autonomic ganglionopathy E. Golden, S. Vernino Dallas, TX, USA
10:30-10:45 AM	<b>AAS-Lundbeck Travel Fellowship Award</b> The prevalence of ganglionic AChR antibodies in postural tachycardia syndrome (POTS) S. Vernino, M. Bryarly, S. Hopkins, L.E. Okamoto, B.K. Black, S.Y. Paranjape, S.R. Raj Dallas, TX, USA
10:45-11:00 AM	AT1R autoantibodies in postural tachycardia syndrome X. Yu, H. Li, A. Fedorowski, D.C. Kem Oklahoma City, OK, USA
11:00-11:30 AM	<b>COFFEE BREAK</b> Coronado CDE
<b>SESSION 2: AUTONOMIC FAILURE</b> <b>Chairs: David Goldstein &amp; David Robertson</b> <b>Coronado AB</b>	
11:30-11:45 AM	Phosphorylated and total alpha-synuclein in Parkinson disease C. Gibbons, N. Wang, J. Garcia, L. Shih, R. Freeman Boston, MA, USA
11:45-12:00 PM	Blood pressure-lowering effect of local passive heat in autonomic failure patients with supine hypertension L.E. Okamoto, J.E. Celedonio, A. Gamboa, C.A. Shibao, S.R. Raj, A. Diedrich, S. Paranjape, B.K. Black, D. Robertson, C.G. Crandall, I. Biaggioni Nashville, TN, USA
12:00-12:15 PM	Clinical characteristics of African American patients with autonomic failure A.C. Arnold, L.E. Okamoto, B.K. Black, S.R. Raj, D. Robertson, I. Biaggioni, C.A. Shibao Nashville, TN, USA
12:15-12:30 PM	Dysautonomic syndrome and heart rate variability in patients of spinocerebellar ataxia type 2 with different clinical stages G. Sánchez-Cruz, L. Velázquez-Pérez, J.M. Iglesias, L.E. Almaguer-Mederos Holguin, Cuba
12:30-12:45 PM	<b>AAS-Lundbeck Travel Fellowship Award</b> Complexity analysis of cardiovascular oscillations in amyotrophic lateral sclerosis B. De Maria, G. Mora, K. Marinou, R. Sideri, A. Porta, R. Furlan, L. Dalla Vecchia Milan, Italy
12:45-1:00 PM	The natural history of pure autonomic failure: a US prospective cohort H. Kaufmann, L. Norcliffe-Kaufmann, J.A. Palma, I. Biaggioni, P. Low, W. Singer, D. Goldstein, A. Peltier, C. Shibao, C. Gibbons, R. Freeman, D. Robertson, on behalf of the Autonomic Disorders Consortium New York, NY, USA

1:00-4:00 PM	<b>FREE TIME</b>
4:00-5:00 PM	<b>CLINICAL AUTONOMIC RESEARCH EDITORIAL BOARD MEETING</b> Nautical
5:00-6:00 PM	<b>TRAINEE SOCIAL</b> Coronado Terrace
6:00-7:00 PM	<b>STREETEN LECTURE</b> Recruitment strategies in efferent sympathetic nerve activity: old hypotheses gain momentum in human multi-unit recordings <u>J. Kevin Shoemaker, Ph.D.</u> London, ON, Canada <b>Chair: David Jardine</b> Coronado AB
<b>AWARDS SESSION</b> <b>Chairs: Victoria Claydon, Chris Gibbons &amp; Lucy Norcliffe-Kaufmann</b> <b>Coronado AB</b>	
7:00-7:15 PM	<b>Streeten Travel Fellowship Award</b> Carotid body denervation prevents the worsening of cardiac function and heart failure in rat models of myocardial infarction and hypertension <u>K. Fujii, Y. Oga, A. Nishizaki, T. Takehara, T. Akashi. K. Saku, K. Sunagawa. T. Kishi</u> Fukuoka, Japan
7:15-7:30 PM	<b>FMS/Peñáz Wesseling Travel Fellowship Award</b> The optimal intermittent calf compression paradigm to improve orthostatic fluid shifts and cardiovascular control <u>B.C.D. Hockin, G.K. Brar, I.A. Ruiz-Romero, V.E. Claydon</u> Burnaby, BC, Canada
7:30-7:45 PM	<b>FMS/Peñáz Wesseling Travel Fellowship Award</b> Baroreflex sensitivity impairment during hypoglycemia is associated with an increase in interleukin-6 <u>B.M.W. Illigens, A.D. Rao, I. Bonyhay, S. Ballatori, M. Casasola, C.H. Gibbons, G. K. Adler, R. Freeman</u> Boston, MA, USA
7:45-8:00 PM	<b>AAS-Lundbeck Travel Fellowship Prize Presentations &amp; Fellow of the American Autonomic Society Presentations</b>
8:00-9:30 PM	<b>POSTER SESSION II</b> Coronado CDE
<b>FRIDAY, NOVEMBER 4, 2016</b>	
8:00-8:30 AM	<b>CONTINENTAL BREAKFAST</b> Coronado CDE
8:30-9:30 AM	<b>Plenary Lecture</b> Reflex circuits in immunity <u>Kevin J. Tracey, M.D.</u> Manhasset, NY, USA <b>Chair: Thomas Chelimsky</b> Coronado AB

<b>SESSION 3: MULTIPLE SYSTEM ATROPHY SYMPOSIUM</b> <b>SPONSORED BY THE MSA COALITION</b> <b>Chairs: Eduardo Benarroch &amp; Horacio Kaufmann</b> <b>Coronado AB</b>	
9:30-10:00 AM	<b>Invited Expert Speaker</b> Update on recognition and course-modifying treatment of MSA <u>Phillip A. Low, M.D.</u> Rochester, MN, USA
10:00-10:15 AM	<b>Don Summers Memorial Multiple System Atrophy Travel Award</b> Cardiovascular autonomic dysfunction in autopsy-confirmed multiple system atrophy: predictors of bad and good outcome <u>E. Vichayanrat, E. De Plabo-Fernandez, F. Valerio-Silva, L. Watson, J. Navarro-Otano, J.L. Holton, N.P. Quinn, C.J. Mathias, V. Iodice</u> London, UK
10:15-10:30 AM	<b>Don Summers Memorial Multiple System Atrophy Travel Award</b> Circadian blood pressure control in afferent versus efferent lesions in the arterial baroreflex <u>J. de Jong, L. Norcliffe-Kaufmann, J.-A. Palma, W. Wieling, H. Kaufmann</u> Amsterdam, The Netherlands
10:30-10:45 AM	Decreased L-aromatic-amino-acid decarboxylase activity and vesicular storage contribute to putamen dopamine depletion in Parkinson's disease and multiple system atrophy <u>D.S. Goldstein, P. Sullivan, Y. Jinsmaa, C. Holmes, D.C. Mash, I.J. Kopin, Y. Sharabi</u> Bethesda, MD, USA
10:45-11:00 AM	Spinal fluid biomarkers for multiple system atrophy - a pilot study <u>W. Singer, A. Schmeichel, D.M. Goldstein, J.D. Schmelzer, A.D. Zeller, T.L. Gehrking, P.A. Low</u> Rochester, MN, USA
11:00-11:30 AM	<b>COFFEE BREAK</b> Coronado CDE
11:30-12:00 PM	<b>PRESENTATIONS FROM TOP 4 POSTERS</b> <b>Chairs: Qi Fu &amp; Satish Raj</b> Coronado AB
<b>SESSION 4: POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME (POTS)</b> <b>Chairs: Qi Fu &amp; Satish Raj</b> <b>Coronado AB</b>	
12:00-12:15 PM	Can we predict the course of postural orthostatic tachycardia syndrome in children? <u>B. Kakavand, E. Nunlist</u> Orlando, FL, USA
12:15-12:30 PM	The face of postural tachycardia syndrome: a cross-sectional community-based survey <u>S.R. Raj, L. Stiles, B. Shaw, E.A. Green, C.A. Dorminy, C.A. Shibao, L.E. Okamoto, E.M. Garland, A. Gamboa, A. Diedrich, I. Biaggioni, D. Robertson</u> Calgary, AB, Canada

12:30-12:45 PM	Cerebral regional oxygen saturation during head-up tilt testing (HUT) in children and adolescents with postural orthostatic tachycardia syndrome (POTS) and matched controls C. Panicker, A. Sadowski, S. Rizvydeen, C.M. Rand, M.S. Carroll, N.L. Kuntz, D.E. Weese-Mayer Chicago, IL, USA
12:45-1:00 PM	<b>AAS-Lundbeck Travel Fellowship Award</b> Assessment of vascular endothelial function in postural tachycardia syndrome and healthy controls J.E. Celedonio, V. Nwazue, R. Figueroa, S.Y. Paranjape, B.K. Black, E.M. Garland, L.E. Okamoto, C.A. Shibao, D. Robertson, A. Diedrich, S.R. Raj, I. Biaggioni, A. Gamboa Nashville, TN, USA
1:00-1:15 PM	Role of sleep disturbances in children with autonomic complaints K. Gundrum, T.C. Chelimsky, N.A. Norins, P. Simpson, M. Nugent, G. Chelimsky Milwaukee, WI, USA
1:15-1:30 PM	Characteristics of POTS patients in a large pediatric program J.R. Boris, T. Bernadzikowski Philadelphia, PA, USA
1:30-7:00 PM	<b>FREE TIME</b>
1:30-3:30 PM	<b>AAS BOARD MEETING</b> Nautical
5:30-6:30 PM	<b>AAS COMMITTEE MEETINGS</b> Coronado Terrace
6:50-7:00 PM	<b>PRIZE WINNERS PHOTO SESSION</b> Roy's San Diego Waterfront (333 W Harbor Drive, San Diego, CA 92101) (for sponsors and awardees of travel awards, research fellowships and poster presentation prizes)
7:00-10:00 PM	<b>PRESIDENTIAL DINNER</b> Roy's San Diego Waterfront (333 W Harbor Drive, San Diego, CA 92101)
<b>SATURDAY, NOVEMBER 5, 2016</b>	
8:00-8:30 AM	<b>CONTINENTAL BREAKFAST</b> Coronado CDE
8:30-9:00 AM	<b>AAS BUSINESS MEETING</b> Coronado AB
<b>SESSION 5 – ORTHOSTATIC HYPOTENSION &amp; SYNCOPE</b> <b>Chairs: Max Hilz &amp; Jens Tank</b> <b>Coronado AB</b>	
9:00-9:15 AM	Cardiovascular regulatory profile in subjects with constitutional hypotension G. Jacob, F. Barbic, F. Dipaola, M. Glago, A. Porta, R. Furlan Tel Aviv, Israel
9:15-9:30 AM	Post-synaptic $\alpha$ 1-adrenergic vasoconstriction is impaired in young patients with vasovagal syncope and is corrected by nitric oxide synthase inhibition J.M. Stewart, R. Sutton, M. Suggs, S. Merchant, C. Terilli, P. Visintainer, M.S. Medow Hawthorne, NY, USA

9:30-9:45 AM	Durability of effect with long-term droxidopa treatment in patients with symptomatic neurogenic orthostatic hypotension L.A. Hewitt, S. Isaacson, J. Lisk, G. Liang, G.J. Rowse Deerfield, IL, USA
9:45-10:00 AM	Can blood pressure responses to the Valsalva maneuver predict orthostatic hypotension? W. Singer, T.L. Gehrking, D.M. Sletten, J.A. Gehrking, P.A. Low Rochester, MN, USA
10:00-10:15 AM	Sit-to-stand testing can effectively measure orthostatic vitals and diagnose orthostatic hypotension when lower diagnostic cut-offs are used B.H. Shaw, E.M. Garland, B.K. Black, S.Y. Paranjape, C.A. Shibao, L.E. Okamoto, A. Gamboa, A. Diedrich, I. Biaggioni, D. Robertson, S.R. Raj Calgary, AB, Canada
10:15-10:45 AM	<b>COFFEE BREAK</b> Coronado CDE
<b>SESSION 6: DIABETIC &amp; AUTONOMIC NEUROPATHY</b> <b>Chairs: Roy Freeman &amp; Janice Gilden</b> <b>Coronado AB</b>	
10:45-11:00 AM	Treatment induced neuropathy of diabetes: an autonomic dysrecognition syndrome C.H. Gibbons Boston, MA, USA
11:00-11:15 AM	Prevalence of autonomic neuropathy in the metabolic syndrome compared to impaired glucose tolerance L. Zilliox, D.M.P. Morado, S. Dunlap, J.W. Russell Baltimore, MD, USA
11:15-11:30 AM	Association of hyperglycemia with autonomic dysfunction during sleep in patients with obstructive sleep apnea (OSA) and mild hyperglycemia A. Peltier, K. Bagai, R. Harder, F. Iqbal, E.M. Garland, B.A. Malow, D. Robertson, A. Diedrich Nashville, TN, USA
11:30-11:45 AM	Epidermal and dermal neurovascular quantification in patients with type 2 diabetes B.C. Suh, E. Sohn, M. McCormick, N. Wang, C. Gibbons, R. Freeman Seoul, Korea
11:45-12:00 PM	Statins exert an antiarrhythmic effect in an animal model of ventricular arrhythmia after myocardial infarction in Type I diabetes: reversal of autonomic imbalance and calcium alternans C.M. Welzig, H. Jin, M. Rajab, A. Albano, B. Wang, M. Aronovitz, R. Blanton, M. Link, H. Park, S.F. Neujaim, J.B. Galper Milwaukee, WI, USA
12:00-12:15 PM	<b>CLOSING REMARKS</b> Dr. Chris Gibbons President, American Autonomic Society

**POSTER SESSION I**

**WEDNESDAY, NOVEMBER 2, 2016**

**7:30-9:00 PM**

**CORONADO CDE**

**Trainee Poster Competition Judges: Mark Chapleau, Victoria Claydon, Roy Freeman, Qi Fu, David Jardine, Horacio Kaufmann, Lucy Norcliffe-Kaufmann, Vera Novak, Satish Raj, David Robertson, Wolfgang Singer & Jens Tank**

**ORTHOSTATIC HYPOTENSION & SYNCOPE**

Poster #1	Effect of droxidopa on fear of falling L.A. Hewitt, S. Isaacson, C. François, G. Peng, G.J. Rowse Deerfield, IL, USA
Poster #2	The new face of baroreflex failure in 2016 K. Carter, B.D. Levine Dallas, TX, USA
Poster #3	Utility of electroencephalography (EEG) during tilt table evaluation for syncope S. Muppidi, M. Miglis, B. Razavi, S. Jaradeh Palo Alto, CA, USA
Poster #4	Dissociation between peripheral hemodynamic responses and central regulatory autonomic feedback mechanisms in treated hypertensive patients during orthostasis in comparison to healthy control subjects S.F.S. Al-Rawas, H.N. Al-Mahrouqi Muscat, Oman
Poster #5	Orthostatic heart rate changes in young patients with vasovagal syncope M.S. Medow, S. Merchant, M. Suggs, C. Terilli, J.M. Stewart Valhalla, NY, USA
Poster #6	Cardiovascular components of pressor response to isometric handgrip exercise in vasovagal syncope J. Idiaquez, J.F. Idiaquez, R. Iturriaga Vina del Mar, Chile
Poster #7	The relationship between symptoms and blood pressure in individuals with orthostatic hypotension C. Gibbons, R. Freeman Boston, MA, USA
Poster #8	Progressive orthostatic hypotension and reduced vasomotor reactivity in patients with vasovagal syncope O. Mamontov, A.V. Kozlenok, M.I. Bogachev, E. Shlyakhto St. Petersburg, Russia
Poster #9	Implementing a program to reduce the burden of orthostatic hypotension in patients of a neurology clinic M.K. Jeroudi, M. Chang, S. Philip, P. O'Suilleabhain Dallas, TX, USA
Poster #10	Cerebrovascular responses to the Valsalva maneuver in pediatric patients with vasovagal syncope B.C.D. Hockin, M.G. Lloyd, C.L. Protheroe, K. Armstrong, S. Sanatani, V.E. Claydon Burnaby, BC, Canada

Poster #11	Usefulness of lower body negative pressure in the clinical autonomic laboratory <u>J.A. Palma</u> , L. Norcliffe-Kaufmann, C. Fuente Mora, J. Martinez, H. Kaufmann New York, NY, USA
<b>GENETIC AUTONOMIC DISORDERS</b>	
Poster #12	Familial dysautonomia: a disease with hidden tears C. Mendoza-Santiesteban, L. Norcliffe-Kaufmann, <u>J.A. Palma</u> , H. Kaufmann New York, NY, USA
Poster #13	Afferent baroreflex failure and lack of nocturnal blood pressure dipping: a mystery solved? <u>J. de Jong</u> , L. Norcliffe-Kaufmann, B. Tijero, J.-A. Palma, H. Kaufmann Amsterdam, The Netherlands
Poster #14	Serum chloride levels and electrodermal activity in hereditary sensory and autonomic neuropathy type III <u>J. Martinez</u> , J.A. Palma, L. Norcliffe-Kaufmann, H. Kaufmann New York, NY, USA
Poster #15	Beta-adrenergic agonists vs. anti-cholinergics in obstructive lung disease in familial dysautonomia: A controlled clinical trial <u>L. Norcliffe-Kaufmann</u> , B. Bar-Aluma, C. Fuente Mora, J. Martinez, O. Efrati, H. Kaufmann New York, NY, USA
<b>AUTONOMIC FAILURE</b>	
Poster #16	Predictors of response to droxidopa in patients with neurogenic orthostatic hypotension <u>J.A. Palma</u> , J. Martinez, M. Perez, L. Norcliffe-Kaufmann, H. Kaufmann New York, NY, USA
Poster #17	Vagal and adrenergic baroreflex sensitivity induced by Valsalva Maneuver in patients of SCA1, SCA2 and SCA3 D. Tamuli, A.K. Jaryal, A.K. Srivastava, <u>K.K. Deepak</u> New Delhi, India
Poster #18	The influence of subthalamic nucleus deep brain stimulation and levodopa on cardiovascular autonomic function in patients with Parkinson's disease <u>K. Li</u> , R. Haase, H. Rüdiger, M. Reimann, H. Reichmann, M. Wolz, T. Ziemssen Dresden, Germany
Poster #19	Impedance plethysmography testing reveals different vascular responses during orthostasis in Parkinson's disease and multiple system atrophy with parkinsonism <u>S. Roy</u> , A.K. Jaryal, A.K. Srivastava, K.K. Deepak Erlangen, Germany
Poster #20	Long-term effects of deep brain stimulation on autonomic function in patients with Parkinson's disease <u>C.-C. Huang</u> , Y.-F. Chen, W.-F. Chen, F.-Y. Shih, Y.-Y. Chang Kaohsiung, Taiwan
Poster #21	Repetitive somato-sensory mechanical stimulation decreases cardiovascular sympathetic activity and blood pressure in Parkinson's disease F. Barbic, M. Bulgheroni, M. Minonzio, R. Zamuner, C.P. Andrade, M. Corato, S. Lalli, F. Dipaola, <u>R. Furlan</u> Rozzano, Italy



Poster #22	Electrodermal activity in synucleinopathies J. Martinez, J.A. Palma, J.C. Gomez-Esteban, L. Norcliffe-Kaufmann, A. González, M.A. Acera, B. Tijero, I. Gabilondo, H. Kaufmann New York, NY, USA
Poster #23	REM behavior disorder in pure autonomic failure M.G. Miglis, S. Muppidi Palo Alto, CA, USA
Poster #24	Growth hormone responses to clonidine stimulation differentiates between multiple system atrophy and pure autonomic failure V. Iodice, F. Valerio-Silva, L. Watson, A. Owens, C.J. Mathias, E. Vichayanrat London, UK
Poster #25	Haemodynamic responses to the somatostatin analogue, octreotide, in patients with pre and post ganglionic lesions of the autonomic nervous system F. Valerio-Silva, E. Vichayanrat, G.T. Ingle, E.M. Hagen, C.J. Mathias, V. Iodice London, UK
Poster #26	<b>AAS-Lundbeck Travel Fellowship Award</b> Pure autonomic failure and Lewy body dementia: red flags of evolution to a widespread alpha synucleinopathy F. Valerio-Silva, E. Vichayanrat, A. Owens, L. Watson, C.J. Mathias, V. Iodice London, UK
Poster #27	The natural history study of synucleinopathies H. Kaufmann, L. Norcliffe-Kaufmann, G. Wenning, J.A. Palma, F. Krismer, W. Singer, V. Iodice, A. Albanese, A. Antonini, K. Bhatia, P. Cortelli, R. Freeman, R. Furlan, C. Gibbons, D.S. Goldstein, J.C. Gomez-Esteban, A. Iranzo, S. Jaradeh, U.J. Kang, H.J. Kim, M.R. Luquin, M. Merello, M. Miglis, P. Pastor, M.T. Pellecchia, A.C. Peltier, J. Schmahmann, C.A. Shibao, S. Vernino, R. Walsh, D. Robertson, I. Biaggioni, P.A. Low New York, NY, USA
Poster #28	Baseline supine norepinephrine levels predict the improvement in orthostatic symptoms after atomoxetine in patients with neurogenic orthostatic hypotension C.A. Shibao, L. Norcliffe-Kaufmann, H. Kaufmann, I. Biaggioni Nashville, TN, USA
Poster #29	Elevated cerebrospinal fluid ratios of cysteinyl-dopamine/3,4-dihydroxyphenylacetic acid in parkinsonian synucleinopathies D.S. Goldstein, C. Holmes, P. Sullivan, Y. Jinsmaa, I.J. Kopin, Y. Sharabi Bethesda, MD, USA
Poster #30	Biomarkers of catecholaminergic neurodegeneration predict Parkinson's disease. Results at 3 years of follow-up in the NINDS PDRisk study D.S. Goldstein, C. Holmes, G.J. Lopez, T. Wu, Y. Sharabi Bethesda, MD, USA
<b>AUTONOMIC REGULATION: BASIC SCIENCE &amp; ANIMAL STUDIES</b>	
Poster #31	Homeostasis, biocybernetics, and autonomic neuroscience D.S. Goldstein, I.J. Kopin Bethesda, MD, USA
Poster #32	Cytokine abnormalities in young patients with autonomic dysfunction R. Martinez, J. Lankford, M.T. Numan, I.J. Butler Houston, TX, USA

Poster #33	The impact of baroreflex on the dynamic renal vascular mechanical properties and renal circulatory regulation T. Nishikawa, T. Arimura, K. Fujii, M. Shinoda, T. Tohyama, K. Yoshida, H. Tsutsui, K. Saku, T. Kishi, K. Sunagawa Fukuoka, Japan
Poster #34	Identification of open loop transfer function of baroreflex using the power spectral analysis of arterial pressure H. Mannoji, K. Saku, T. Nishikawa, T. Tohyama, Y. Oga, K. Abe, K. Kamada, T. Kishi, H. Tsutsui, K. Sunagawa Fukuoka, Japan
Poster #35	Left ventricular hypertrophy induced heart failure inhibits the hypothalamic paraventricular nucleus neurotransmission to parasympathetic cardiac vagal neurons of the brainstem J. Dyavanapalli, D. Mendelowitz Washington, DC, USA
Poster #36	<b>AAS-Lundbeck Travel Fellowship Award</b> Cardiac autonomic function impairment in concussed adolescents during a sit-to-stand protocol M.E. Moir, K.C. Abbott, S.A. Fischer, J. Elfassy, L.K. Fischer, D.D. Fraser, J.K. Shoemaker London, ON, Canada
Poster #37	Programming of neurogenic hypertension in offspring from obese mothers K. Lim, S.L. Burke, G.A. Head Melbourne Australia
Poster #38	Imidazoline receptor agonist rilmenidine reverses synergistic pro-oxidant actions of angiotensin II and MsrA deficiency: implications in dysautonomia and hypertension R. Sabharwal, R.N. El Accaoui, R.M. Weiss, M.K. Davis, F.M. Abboud, M.W. Chapleau Iowa City, IA, USA
Poster #39	Ang-(1-7) improves autonomic function, delays disease progression, and increases lifespan in superoxide dismutase 1 (SOD1) mice with amyotrophic lateral sclerosis L. Yang, L. Gutmann, R. Sabharwal Iowa City, IA, USA
Poster #40	Autonomic influence on myocardial repolarisation analysed from T-waves in the ECG A.-B. Mehlsen, M. Cesario, H.B.D. Soerensen, J. Mehlsen Copenhagen, Denmark
<b>POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME (POTS)</b>	
Poster #41	Is autonomic dysfunction a possible side effect to vaccination against human papilloma virus? J. Mehlsen, K. Pors, L.S. Brinth Frederiksberg, Denmark.

Poster #42	Electrodermal activity during head-up tilt in patients with POTS <u>S. Balegh</u> , M. Robin, J. Benoit, B. Ditto, R. Schondorf Montrea, QC, Canada
Poster #43	Ivabradine: a potential treatment in postural orthostatic tachycardia syndrome (POTS) <u>H. Mistry</u> , S. Eziukwu, M.M. Ahsan, A. Butt, S. Hamid, A. Suleman McKinney, TX, USA
Poster #44	Nutcracker syndrome of left renal vein in postural orthostatic tachycardia syndrome (POTS) <u>H. Mistry</u> , S. Lingampally, A. Butt, S. Hamid, S. Eziukwu, A. Suleman, J. Bard McKinney, TX, USA
Poster #45	A case report on a novel mutation in Ehlers-Danlos syndrome (EDS) and postural orthostatic tachycardia syndrome (POTS) <u>H. Mistry</u> , S. Eziukwu, A. Butt, A. Suleman McKinney, TX, USA
Poster #46	A case study on the usefulness of autonomic test screening in Lyme disease <u>H. Mistry</u> , M.M. Ahsan, A. Butt, S. Eziukwu, A. Suleman, R. Wilson McKinney, TX, USA
Poster #47	Therapeutic trial of Midodrine in non-postural orthostatic tachycardia syndrome (POTS) patients with orthostatic intolerance S. Eziukwu, <u>H. Mistry</u> , M.M. Ahsan, A. Butt, A. Suleman McKinney, TX, USA
Poster #48	Heart rate dynamics in postural orthostatic tachycardia syndrome <u>P. Kumar</u> , S. Gupta , B. Kaul, S. Raghavan New Delhi, India
Poster #49	Quantitative assessment of autonomic symptom burden in postural tachycardia syndrome M. Friesz, N. Rea, C.L. Campbell, E.Palmer, <u>M.M. Cortez</u> Salt Lake City, UT, USA
Poster #50	Biofeedback intervention in pediatric patients with postural orthostatic tachycardia syndrome (POTS) <u>K.J. Homan</u> , C. Harbeck-Weber, M. Hord, J. O'Connor Rochester, MN, USA
Poster #51	Vagal dysfunction in patients with neuropathic POTS <u>G. Jacob</u> , L. Diedrich, K. Sato, S.R. Raj, D. Robertson, I. Biaggioni, A. Diedrich Tel Aviv, Israel
Poster #52	Chronic intravenous hydration as a treatment for adults with refractory postural orthostatic tachycardia syndrome <u>D.S. Saperstein</u> Phoenix, AZ, USA
Poster #53	“Which came first - the chicken or the egg?” Vitamin D deficiency in POTS patients A. Luehrs, C.-A. Haensch Moenchengladbach, Germany
Poster #54	The diagnostic experience in postural tachycardia syndrome: insights from a cross-sectional community-based survey <u>S.R. Raj</u> , L. Stiles, B. Shaw, E.A. Green, C.A. Dorminy, C.A. Shibao, L.E. Okamoto, E.M. Garland, A. Gamboa, A. Diedrich, I. Biaggioni, D. Robertson Calgary, AB, Canada

Poster #55	Carbidopa fails to decrease urinary sodium excretion or improve orthostatic tachycardia in postural tachycardia syndrome E.M. Garland, J.E. Celedonio, V. Nwazue, S.Y. Paranjape, B.K. Black, A. Diedrich, D. Robertson, S.R. Raj Nashville, TN USA
<b>POSTER SESSION II</b> <b>THURSDAY, NOVEMBER 3, 2016</b> <b>8:00-9:30 PM</b> <b>CORONADO CDE</b> <b>Trainee Poster Competition Judges: Eduardo Benarroch, Italo Biaggioni, Thomas Chelimsky, William Cheshire, Chris Gibbons, David Goldstein, Max Hilz &amp; Yrsa Sverrisdottir</b>	
<b>CARDIOVASCULAR DISEASE, OBESITY &amp; AGING: HUMAN STUDIES</b>	
Poster #56	Exaggerated pressor and sympathetic responses to short-duration static handgrip in coronary artery disease patients: effect of six-months of cardiac rehabilitation M.B. Badrov, K.N. Wood, S. Lalande, N. Suskin, J.K. Shoemaker London, ON, Canada
Poster #57	Features of the autonomic circulatory control in patients with arterial hypertension depending on concomitant migraine O.V. Mamontov, L. Babayan, A.V. Amelin, M. Bogachev, A.A. Kamshilin St. Petersburg, Russia
Poster #58	Relationship between cardiovagal control and diastolic blood pressure in adult Native and Mexican Americans with a history of alcohol use disorders J.R. Criado, D.A. Gilder, M.A. Kalafut, C.L. Ehlers La Jolla, CA, USA
Poster #59	<b>AAS-Lundbeck Travel Fellowship Award</b> The pathophysiology of carotid sinus hypersensitivity: sensory block of the sternocleidomastoid muscles does not increase responses to carotid sinus massage M.G. Lloyd, T. van Leeuwen, J. Wakeling, M. Koehle, R.J. Drapala, V.E. Claydon Burnaby, BC, Canada
Poster #60	Sympathetic activity does not contribute to hypertension in obese African American women C.A. Shibao, A. Marinos, J.E. Celedonio, L.E. Okamoto, C.A. Arnold, A. Diedrich, A. Gamboa, I. Biaggioni Nashville, TN, USA
Poster #61	Cardiac-vascular properties in older women with controlled hypertension Q. Fu, Y. Okada, S.A. Best, S.S. Jarvis, M.M. Galbreath, B.D. Levine Dallas, TX, USA
Poster #62	Higher within-person blood pressure associated with shorter sleep duration P.M. Macey, L. Samy, M.-L. Brecht, K.E. Macey, S. Shaboyan, M. Sarrafzadeh Los Angeles, CA, USA

<b>NEUROIMAGING IN BRAIN &amp; HEART</b>	
Poster #63	Sex differences in insular cortex gyri responses to a hand grip challenge P.M. Macey, N.S. Rieken, R. Kumar, J.A. Ogren, R.M. Harper Los Angeles, CA, USA
Poster #64	Inter-individual sympathetic responses to experimental muscle pain: the central circuitry responsible for the increases or decreases in MSNA S. Kobuch, A. Fazalbhoy, R. Brown, L.A. Henderson, V.G. Macefield Penrith, Australia
<b>DIABETIC, AUTOIMMUNE &amp; OTHER AUTONOMIC NEUROPATHIES</b>	
Poster #65	Autonomic dysfunction in Charcot Marie Tooth disease IA R. Bhavaraju-Sanka, P. Jones San Antonio, TX, USA
Poster #66	Symptomatic autonomic impairment in autism spectrum disorders B.P. Goodman, J.A. Khoury, C. Hoffman-Snyder, B.K. Woodruff Scottsdale, AZ, USA
Poster #67	Intraepidermal nerve fiber density quantification is more sensitive method than sudomotor test for detecting early neuropathy in type 2 diabetes E.H. Sohn, K.S. Song, A.Y. Lee Daejeon, South Korea
Poster #68	Interaction between circadian blood pressure rhythm and autonomic nervous function in diabetic patients with chronic kidney disease G. Yasuda, S. Komiya, T. Hase, A. Fujiwara, N. Hirawa Yokohama, Japan
Poster #69	Effect of gastroparesis on glycemic variability in insulin-treated patients with diabetes mellitus B. White, B.G. Theckedath, V. Nellaiappan, A. Gupta, R. Bhattaram, J.L. Gilden North Chicago, IL, USA
Poster #70	Unable to attend
<b>HEALTHCARE SYSTEMS &amp; DELIVERY IN AUTONOMIC DISORDERS</b>	
Poster #71	Autonomic neuropathy in adult Still's disease G.A. Cook Portsmouth, VA, USA
<b>GASTROINTESTINAL &amp; UROGENITAL SYSTEMS, IBS, CYSTITIS</b>	
Poster #72	Autonomic disorders in a tertiary military referral clinic G.A. Cook Portsmouth, VA, USA
Poster #73	Psychophysiologic responses to a laboratory stressor in chronic pelvic pain conditions vs. healthy controls D. Williams, J. Janata, G. Chelimsky, K. Pajer, J. Thayer, T. Chelimsky Columbus, OH, USA

Poster #74	Chronic stress induced autonomic and mitochondria dysfunction in neuronal and non-neuronal cells: role in IC/BPS F.A. Kullmann, A. Wolf-Johnston, B. McDonnell, A.J. Kanai, C. Corey, S. Shiva, T. Chelimsky, L. Rodriguez, L.A. Birder Pittsburgh, PA, USA
<b>MICRONEUROGRAPHY &amp; CARDIOVASCULAR REFLEXES IN HUMANS</b>	
Poster #75	Head-down tilt bed rest increases sympathetic burst latency S.A Klassen, S. De Abreu, P. Denise, J.K. Shoemaker, H. Normand London, ON, Canada
Poster #76	Vascular sympathetic control in Sjögren syndrome E. Brunetta, P. Mandelli, M.I.S. Achenza, E. Scannella, L. Boccassini, A. Marchi, F. Barbic, I. Bianchi, P.S. Puttini, A. Porta, R. Furlan Rozzano, Italy
Poster #77	Can distraction play a role in sympathetic output and pain perception during experimental muscle pain? R. Brown, S. Kobuch, V. Macefield Campbelltown, Australia
Poster #78	Stimulation of the dorsal root ganglion (DRG) for medicine refractory chronic neuropathic pain: is there sympathetic involvement? Y.B. Sverrisdóttir, J. Fitzgerald, A. Kent, J. Kramer, A.L. Green Oxford, UK
Poster #79	Influences of experimental air pollution on human sympathetic nerve traffic: a double blind, randomized, twofold crossover study K. Heusser, J. Tank, O. Holz, M. May, J. Brinkmann, A. Diedrich, T. Framke, A. Koch, A. Grosshennig, F.C.G.J. Sweep, W. Koch, N. Krug, J. Jordan, J.M. Hohlfeld Hannover, Germany
<b>CEREBRAL BLOOD FLOW REGULATION</b>	
Poster #80	Oscillatory lower body negative pressure impairs task related functional hyperemia in healthy volunteers J.M. Stewart, K. Balakrishnan, P. Visintainer, Z.R. Messer, C. Terilli, M.S. Medow Hawthorne, NY, USA
Poster #81	Influence of sex, menstrual cycle and oral contraceptives on autonomic function and cerebrovascular resistance S. Abidi, M. Nili, S. Serna, S. Kim, H. Edgell Toronto, ON, Canada
Poster #82	Cerebrovascular function and persistent headache after sports-related concussion: preliminary results T. Albalawi, J.W. Hamner, W.P. Meehan III, C.O. Tan Boston, MA, USA
Poster #83	Orthostatic cerebral hypoperfusion syndrome (OCHOs) P. Novak Boston, MA, USA
<b>NOVEL THERAPIES &amp; CLINICAL TRIALS</b>	
Poster #84	Safety and preliminary efficacy of intranasal insulin in Parkinson disease: a pilot study P. Novak, D. Pimentel, V. Novak Boston, MA, USA

Poster #85	Clinical observations regarding the use of ivabradine in autonomic dysfunction A. Barboi, S. Moffat, V. Cadell, I. Furman Glenview, IL, USA
Poster #86	Droxidopa for neurogenic orthostatic hypotension in autoimmune autonomic ganglionopathy J.A. Palma, J. Martinez, L. Norcliffe-Kaufmann, H. Kaufmann New York, NY, USA
Poster #87	Blood pressure normalization with cranial nerve modulation in migraine subjects R.M. Harper, D. Snodgrass, F. Yan-Go, J. Jen, C.R. White, R.K. Harper, M. Yazdizadeh, E.K. Sauerland Los Angeles, CA, USA
Poster #88	Droxidopa improved attention and hyperactivity in a patient with congenital insensitivity to pain with anhidrosis (HSAN IV) C. Fuente Mora, C. Spalink, J.A. Palma, L. Norcliffe-Kaufmann, H. Kaufmann New York, NY, USA
Poster #89	Dexmedetomidine: a novel approach to treating refractory adrenergic crisis in familial dysautonomia R.C. Dillon, C. Spalink, L. Norcliffe-Kaufmann, J.A. Palma, D. Altshuler, J. Papadopoulos, H. Kaufmann New York, NY, USA
Poster #90	Hemodynamics and muscle sympathetic nerve activity in patients with end stage heart failure before and after left ventricular assist device implantation K. Heusser, J. Boehm, J. Brinkmann, C. Bara, A. Haverich, A. Diedrich, J. Jordan, J. Schmitto, J. Tank Hannover, Germany
Poster #91	<b>AAS-Lundbeck Travel Fellowship Award</b> Cardiac pacemaker channel (HCN4) inhibition and atrial arrhythmogenesis following acute relief of cardiac sympathetic activation K. Chobanyan-Jürgens, K. Heusser, D. Duncker, C. Veltmann, M. May, H. Mehling, F.C. Luft, C. Schröder, J. Jordan, J. Tank Hannover, Germany
<b>PATIENT EDUCATION &amp; SOCIAL MEDIA</b>	
Poster #92	How to leverage social media to advance the field of autonomic disorders W.P. Cheshire Jr., L. Norcliffe-Kaufmann Jacksonville, FL, USA
<b>PEDIATRIC AUTONOMIC DISORDERS</b>	
Poster #93	Reduced vagal modulation of heart rate in pediatric functional gastrointestinal disorders (FGID) L. Zhong, T. Chelimsky, C. Welzig, A. Silverman, G. Chelimsky Milwaukee, WI, USA
Poster #94	Characterization of endocannabinoid (EC) changes with diffuse noxious inhibitory control (DNIC) in subjects with pediatric functional gastrointestinal disorders (FGID) D. Wayer, T. Chelimsky, C. Hillard, A. Silverman, L. Conant, P. Simpson, C. Welzig, K. Hainsworth, G. Chelimsky Milwaukee, WI, USA

Poster #95	<p><b>AAS-Lundbeck Travel Fellowship Award</b>            Low bioenergetics in functional disorders parallel disability score            T. Chelimsky, P. Simpson, L. Zhang, J. Banda, D. Dimock, S. Komasa, <u>E. Awe</u>, G. Chelimsky            Milwaukee, WI, USA</p>
Poster #96	<p>Identification and evaluation of rare, congenital central hypoventilation syndrome (CCHS)-causing PHOX2B non-polyalanine repeat expansion mutations (NPARMs) and associated phenotypes  <u>A. Zhou</u>, P. Reineke, C. Moore, C.M. Rand, V. Speare, E.M. Berry-Kravis, L. Zhou, M. Yu, L.J. Jennings, D.E. Weese-Mayer            Chicago, IL, USA</p>
<b>SPINAL CORD INJURY &amp; AUTONOMIC DYSFUNCTION</b>	
Poster #97	<p><b>AAS-Lundbeck Travel Fellowship Award</b>            Bowel management and quality of life following spinal cord injury: the influence of autonomic dysreflexia  <u>V.E. Lucci</u>, J.A. Inskip, M.S. McGrath, R. Willms, V.E. Claydon            Vancouver, BC, Canada</p>
<b>EXERCISE, TEMPERATURE REGULATION &amp; HYPOXIA</b>	
Poster #98	<p>Correlation between heart rate at rest and vagal reactivation after submaximal exercise test  <u>G.L. Garcia</u>, K.E. Fontana, C.J. Gomes, E.M.K.V.K. Soares, W.R. Alves, L.G.G. Porto, L.F. Junqueira Jr, G.E. Molina            Brasilia, Brazil</p>
<b>SYMPATHOVAGAL BALANCE &amp; SPECTRAL ANALYSIS</b>	
Poster #99	<p>Vestibular dysfunction in the autonomic laboratory  <u>S. Jaradeh</u>, S. Muppidi, M. Miglis, L. Fong, F. Luc, T. Prieto            Stanford, CA, USA</p>
Poster #100	<p>The relationship between parasympathetic activity and aortic blood pressures in young healthy individuals  <u>P.L. Latchman</u>, G.J. Gates, W. Zhu, R.S. Axtell, R. Thiel, N.S. Stachenfeld, R.E. De Meersman            New Haven, CT, USA</p>
Poster #101	<p>State anxiety and nonlinear heart rate variability during examination stress  <u>E.V. Saperova</u>, D.A. Dimitriev            Cheboksary, Russia</p>
Poster #102	<p><b>AAS-Lundbeck Travel Fellowship Award</b>            Short- and long-term effects of Fingolimod on cardiovagal gain in patients with relapsing-remitting multiple sclerosis  <u>S. Roy</u>, C. de Rojas Leal, R. Wang, M. Liu, D.-H. Lee, R.A. Linker, M.J. Hilz            Erlangen, Germany</p>
Poster #103	<p>Central autonomic dysregulation may cause inadequate cardiovagal modulation in multiple sclerosis patients after six months of Fingolimod-treatment  <u>M.J. Hilz</u>, R. Wang, F. Canavese, M. Liu, C. de Rojas Leal, S. Roy, D.-H. Lee, R.A. Linker            Erlangen, Germany</p>
Poster #104	<p>Heart rate variability in women working in hospital: a comparison between women with and without preschool children  <u>L. Dalla Vecchia</u>, B. De Maria, C. Andreotti, V. Mansi, A. Porta            Milan, Italy</p>



Poster #105	Investigating the relationship between cardiac interoception and heart rate variability via interoceptive (active) inference A.P. Owens, K.J. Friston, D.A. Low, C.J. Mathias, H.D. Critchley London, UK
<b>AUTISM SPECTRUM DISORDERS</b>	
Poster #106	Clinical autonomic testing in autism spectrum disorder A.P. Owens, V. Iodice London, UK
Poster #107	Autonomic symptoms endorsed by adults with autism spectrum disorders B.K. Woodruff, J.B. Adams, M. Temkit, B.P. Goodman. Scottsdale, AZ, USA
<b>AUTONOMIC FUNCTION TESTING</b>	
Poster #108	Validity of bedside tests for evaluating sweating in normal and anhidrotic patients R.K. Khurana, C. Russell Baltimore, MD, USA
<b>LATE-BREAKING ABSTRACTS</b>	
Poster #LB1	Fingolimod-initiation in multiple sclerosis patients is associated with beneficial cardiovascular autonomic effects R. Wang, C. de Rojas Leal, M. Liu, F. Canavese, S. Roy, K.M. Hösl, K. Winder, D.-H. Lee, R.A. Linker, M.J. Hilz Erlangen, Germany
Poster #LB2	Elimination of spurious absent sweat response in QSART recordings J. Corfits, W. Singer, P. Sandroni, R.D. Fealey, E.A. Coon, E.E. Benarroch, S. Berini, M. Mauermann, D.M. Sletten, J.K. Cutsforth-Gregory, J.D. Schmelzer, P.A. Low Rochester, MN, USA
Poster #LB3	Neurogenic versus non-neurogenic orthostatic hypotension – practical predictors for the office H.A. Kim, D.M. Sletten, M.D. Suarez, P. Sandroni, R.D. Fealey, E.A. Coon, P.A. Low, W. Singer Rochester, MN, USA
Poster #LB4	Autoimmunity-associated autonomic failure with sympathetic denervation D.S. Goldstein, C. Holmes, P. Sullivan, V. Donadio, E. Zhong, R. Isonaka, Y. Sharabi Bethesda, MD, USA
Poster #LB5	Pure autonomic failure without synucleinopathy R. Isonaka, C. Holmes, P. Sullivan, D.S. Goldstein Bethesda, MD, USA
Poster #LB6	Contribution of the carotid chemoreflex to sympathetic discharge patterns in healthy humans J.K. Limberg, W.W. Holbein, M.B. Badrov, M.J. Joyner, J.K. Shoemaker Rochester, MN, USA
Poster #LB7	Effect of aromatherapy on autonomic nervous system by using wearable devices in patients after childbirth M. Kogure, K. Imazu, Y. Kogure, Y. Yamanouchi, J. Hirose, K. Usuku Kumamoto, Japan

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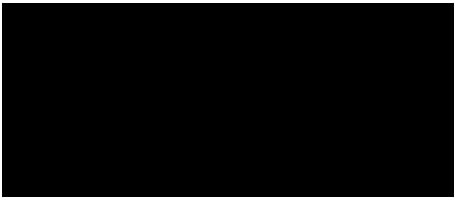
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