

# ISAN 2009

**Manly Pacific Hotel, Sydney, Australia  
1<sup>st</sup> September – 4<sup>th</sup> September, 2009**

## POSTERS

**2<sup>nd</sup> September 1.15 - 3.15 pm**

P1.1 – P1.37      **Clinical**  
P2.1 – P2.21      **Human Physiology**

**3<sup>rd</sup> September 1.15 - 3.15 pm**

P3.1 – P3.19      **Postganglionic neurons and effectors**  
P4.1 - P4.25      **GI Tract**  
P5.1 – P5.9      **Dietary influences and diabetes**

**4<sup>th</sup> September 1.45 – 3.45 pm**

P6.1 – P6.7      **Development and neuronal Repair**  
P7.1 – P7.27      **Central cardiovascular control**  
P8.1 – P8.9      **Arousal, stress, thermoregulation and conditioning**  
P9.1 – P910      **Sensory and Inflammation**

## **P1 Clinical (2<sup>nd</sup> September 1.15 - 3.15 pm)**

### **P1.1 (HOT 1.1) Autonomic nervous system and its association with brain function in major depressive disorder**

T. Dawood, D. Barton, E. Lambert, D. Laude, J.-L. Elghozi, F. Socratous, S. Hennebry, G. Lambert. (France)

### **P1.2 Autonomic recovery after acute spinal cord injury assessed by sympathetic vasoconstrictor responses to physiological stimulation**

J. L. Lauschke, S. Rutkowski, G. Leong, P. M. E. Waite (Australia) -

### **P1.3 Thermal sweat test for the differential diagnosis of Parkinson disease and multiple system atrophy in human patients**

Y. Nagashima, M. Kunimoto, M. Saito, T. Kudeken, Y. Kasai, N. Ogura, K. Muramatzu and M. Maruyama (Japan)

### **P1.4 Patients with pure autonomic failure and Parkinson's disease showed similar characteristics in electrogastrogram, but patients with multiple system atrophy did not. M.**

Asahina, Y. Sakakibara, T. Fukushima, A. Suzuki and S Kuwabara (Japan)

### **P1.5 Reduced Sympathetic Neural Outflow in Patients with Postural Orthostatic Tachycardia Syndrome**

A. Diedrich, K. Sato, L. Diedrich, A. Gamboa, S. R. Raj, I. Biaggioni, D. Robertson (USA)

### **P1.6 Sympathetic nerve activity in takotsubo cardiomyopathy 'The broken heart syndrome'**

Y. B. Sverrisdóttir and E. Omerovic (Sweden)

### **P1.7 Is polycystic ovary syndrome associated with high sympathetic nerve activity and size at birth?**

Y.B. Sverrisdottir, T. Mogren, J. Kataoka, P. O. Janson and E. Stener-Victorin (Sweden)

### **P1.8 Low-frequency electro-acupuncture and physical exercise decrease high muscle sympathetic nerve activity in polycystic ovary syndrome**

E. Stener-Victorin, E. Jedel, P. O. Janson and Y. B. Sverrisdottir (Sweden)

### **P1.9 Effects of hypertension therapy based on eprosartan on systolic arterial blood pressure and cognitive function: results of the OSCAR study**

O. Hanon, J. Berrou, L. Negre-Pages, J. Goch, Z. Nadhaz, R. Petrella, A. Sedefdjian, F. Sévenier, E. Shlyakhto and A. Pathak (France, Germany, Poland, Hungary, Canada & Russia)

### **P1.10 Autonomic control of heart rate and blood pressure in Anderson-Fabry's disease**

J. Mehlsen, M. Ballegaard, U. Feldt-Rasmussen and A-B. Mehlsen (Denmark)

### **P1.11 Dysautonomia Rating Scales in Parkinson's Disease: Symptoms of Orthostatic Hypotension**

A. Pavy-Le Traon, G. Amarenco, S. Duerr, C. Fowler, H. Kaufmann, H. Lahrman, S. R. Shaftman, F. Tison, G. K. Wenning, C. Goetz, W. Poewe, C. Sampaio, G. T. Stebbins, O. Rascol. (France, Austria, UK & USA)

### **P1.12 Specificity of 7 BRS sequence techniques in brain dead subjects**

W. Struhal, S. Hödl, H. Lahrman, F. Gruber, M. Vosko, G. Ransmayr (Austria)

### **P1.13 The pathologic relevance of the initial reaction during head-up tilt**

W. Struhal, K. Böck, S. Hödl, H. Lahrman, G. Ransmayr (Austria)

**P1.14 Excessive sympathetic activation in heart failure with chronic renal failure: role of chemoreflex activation.**

F. Despas, N. Detis, N. Franchitto, M. Galinier, J-M. Senard and A. Pathak (France)

**P1.15 Levosimendan improves hemodynamics functions without sympathetic activation in severe heart failure patients refractory to dobutamine: direct evidence from sympathetic neural recording**

F. Despas, C. Trouillet, N. Franchitto, M. Galinier, J.M. Senard, A. Pathak (France)

**P1.16 A case of subacute pandysautonomia with ganglionic antibodies associated with numerous organ specific autoimmune diseases**

S. Reddel. (Australia)

**P1.17 Cardiac Autonomic Dysfunction in Insular Cortex Infarction**

J. Oh, Y. S. Moon and K. D. Park (Korea)

**P1.21 Analysis of heart rate variability demonstrates cardiac hypersympathetic tone at rest in narcolepsy with cataplexy**

D. Grimaldi, G. Barletta, P. Guaraldi, R. Terlizzi, G. C. Buonauro, C. Franceschini, G. Plazzi, P. Montagna and P. Cortelli (Italy)

**P1.22 Progression of thermal sweating dysfunction and findings on [123I]metaiodobenzylguanidine myocardial scintigraphy in Parkinson's disease patients**

M. Kunimoto, Y. Fujita, A. Kuga, M. Ubano and Y. Uesaka (Japan)

**P1.23 Sudomotor function in drug naïve patients with idiopathic restless legs syndrome**

Y.-M. Lim and K. K. Kim (Korea)

**P1.24 Orthostatic challenge identifies subtle sympathetic cardiac dysfunction in patients after mild traumatic brain-injury**

M. J. Hilz, S. Anders, F. Aurnhammer, H. Marthol, P. Blaszczyńska, T. Schroeder, A. Roßmeißl, S. Schwab, S. Flanagan and P. De Fina (Germany & USA)

**P1.25 Ocular pressure test unveils subtle autonomic cardiovascular dysfunction in patients after mild traumatic brain injury**

M. J. Hilz, F. Aurnhammer, S. Anders, H. Marthol, P. Blaszczyńska, T. Schroeder, A. Roßmeißl, S. Schwab, S. Flanagan and P. De Fina (Germany & USA)

**P1.26 Cardio-respiratory coupling indicates suppression of vagal activity in acute schizophrenia**

K.-J. Bär, J. Peupelmann, M. K. Boettger, S. Berger and V. K. Yeragani (Germany & USA)

**P1.27 Autonomic dysfunction in unaffected first-degree relatives of patients suffering from schizophrenia**

K.J. Bär, S. Berger, M. K. Boettger, S. Schulz, A. Voss, V. K. Yeragani (Germany & USA)

**P1.28 (HOT 1.2) Acute effects of levodopa administration on cardiovascular responses to tilt test in patients with parkinsonism**

P. Guaraldi, G. Calandra-Buonauro, R. Terlizzi, L. Solieri and P. Cortelli (Italy)

**P1.29 A comparison of heart rate variability in subjects with Parkinson's disease or extrapyramidal motor slowing: Is heart rate variability a reliable indicator of autonomic dysfunction in Parkinson's disease?**

R. Brown, S. R. Duma, G. A. Broe and V. Macefield (Australia)

**P1.30 Pathophysiology of hemifacial flushing and contralateral anhidrosis with crossed hypohidrosis under the chest at heating in children**

Y. Inukai, S. Iwase, J. Sugeno, N. Nishimura, M. Izumi, K. Goto, K. Sahashi, Y. Miyazaki, A. Nakamura and Y. Tamada (Japan)

**P1.31 Influence of smoking on the human autonomic nervous system**

H. Toshima, N. Kimura and S. Kurihara (Japan)

**P1.32 Autonomic nervous system and cardiac function in children with attention-deficit/hyperactivity disorder and the effects of evoked attention and sympathomimetic medication on these systems.**

M. Viljoen, BL Negrao and CC Grant (South Africa)

**P1.33 Angiotensin-II contributes to the increased leg vascular resistance in spinal cord-injured individuals**

J.T. Groothuis, D. H. J. Thijssen, J. Deinum, G. A. Rongen, P. Smits and M. T. E. Hopman (The Netherlands & UK)

**P1.34 Catheter-based renal denervation reduces total body and renal noradrenaline spillover and blood pressure in resistant hypertension**

M. Schlaich, H. Krum, P. Sobotka, R. Whitbourn, J. Sadowski, K. Bartus (5), B. Kapelak, A. Walton, S. Thambar and M. Esler (Australia)

**P1.35 Normalization of autonomic function in children with coarctation of the aorta following surgical correction in infancy**

J.W. Polson, D. Kenny, J.F.R. Paton and A.R. Wolf (UK)

**P1.36 (HOT 1.3) Changes of the enteric nervous system in Alzheimers disease**

K. Schäfer, S. Semar, M. Letiembre, M. Klotz, T. Wyss-Coray, Y. Liu, K. Fassbender and W. Schulz-Schaeffer (Germany and Belgium)

**P1.37 Japanese patients with triple A syndrome**

M. Hirano, M. Shima, Y. Nakajima, H. Fukui, Y. Hara, and S. Ueno (Japan)

**P1.38 Lumbar Radiculopathy-mimicking Focal Cortical Infarction of the Precentral Gyrus**

S.Y. Kang, S.-B. Kwon, S. Jung, Y. M. Lim and S.H. Hwang (Korea)

**P1.39 “The Grinch Syndrome”: A New Name for the Postural Orthostatic Tachycardia Syndrome.**

Q. Fu, S. Shibata, T.B. VanGundy, M.M. Galbreath, P.S. Bhella and B.D. Levine. (USA)

**P1. 40 Reduced cardiovascular reactivity with anxiety in patients with obstructive sleep apnea**

P.M. Macey, P. Wu, R. Kumar, M. A. Woo and R. M. Harper (USA)

**P2 Human Physiology (2<sup>nd</sup> September 1.15 - 3.15 pm)**

**P2.1 The effects of selective activation of muscle and skin nociceptors on skin sympathetic nerve activity, sweat release and skin blood flow in awake human subjects**

A.R. Burton, I. Birznieks, J. Spaak, L.A. Henderson and V.G. Macefield (Australia & Sweden)

- P2.2 Cortical activation patterns associated with skeletal muscle afferent stimulation**  
R. Goswami, M. F. Frances and J. K. Shoemaker (Canada)
- P2.3 (HOT 2.1) Human cortical regions associated with the sympathetic vasoconstrictor response to simulated central and obstructive apneas**  
D.S. Kimmerly, B.L. Morris and J.S. Floras (Canada)
- P2.4 Cardioventilatory coupling and pulmonary gas exchange efficiency in humans**  
P. Y. W. Sin, Y .C. Tzeng and D .C. Galletly (New Zealand)
- P2.5 T-wave amplitude variation as marker of autonomic nervous control of the heart**  
A-B Mehlsen and J. Mehlsen (Denmark)
- P2.6 Comparison of baroreflex sensitivity determined by cross-spectral analysis at respiratory and 0.1 Hz frequencies in man**  
N. Honzikova, B. Fiser, Z. Novakova and E. Zavodna (Czech Republic)
- P2.7 Cardiovascular effects of glossopharyngeal insufflation in divers**  
K. Heusser, G. Dzamonja, J. Tank, I. Palada, Z. Valic, D. Bakovic, A. Obad, V. Ivancev, T. Breskovic, A. Diedrich, M. J. Joyner, F. C. Luft, J. Jordan and Z. Dujic (Germany, Croatia, USA & Germany)
- P2.8 Action potential content in human muscle sympathetic nerve activity**  
A. Salmanpour, L. J. Brown and J. K. Shoemaker (Canada)
- P2.9 Baroreflex open-loop gain at rest and during exercise in man**  
B. Fiser, N. Honzikova, J. Moudr, Z. Novakova and E. Zavodna (Czech Republic)
- P2.10 Summation of afferent input affects sympathetic homeostasis: mild skin tactile stimulation during painful isometric muscle contraction reduces perceived pain but augments muscle sympathoexcitation in man**  
H. Krämer, Y. B. Sverrisdottir, F. Birklein, H. Olausson and M. Elam (Sweden & Germany)
- P2.11 Cognitive and autonomic evaluation of emotional scenes: a comparison between Japanese and French individuals**  
N. Casiez, O. Mandai, M. Taisne, A. Kimura, T. Kobayashi and H. Sequeira (France & Japan)
- P2.12 Effects of posture on vestibular modulation of muscle sympathetic nerve activity in humans**  
C. James and V. Macefield (Australia)
- P2.13 Age-related changes in autonomic cardiac control during sleep: non linear and complexity analyses of heart rate variability**  
E. Tobaldini, A. U. Viola, S. L. Chellappa, A. Porta, K. R. Casali and N. Montano (Italy, Switzerland & Brazil)
- P2.14 Measurement of resting cardiac output: impedance cardiography versus foreign gas rebreathing**  
K. Heusser, C. Rasche-Schuermann, A. Diedrich, J. Jordan and J. Tank (Germany & USA)
- P2.15 The effect of exercise and lifestyle interventions on the autonomic nervous system function as measured by heart rate variability in students at risk of cardiovascular disease**  
J. H. Kirby, C. C. Grant, D. C. Janse van Rensburg and R. Collins (South Africa)

**P2.16 Sport type and the resting autonomic nervous system function**

C. C. Grant, D. C. Janse van Rensburg and M. Viljoen (South Africa)

**P2.17 The relationship between performance measurements and heart rate variability as measured in the supine and standing positions**

C. C. Grant, J. Clark, P. Wood, D. C. Janse van Rensburg and M. Viljoen (South Africa)

**P2.18 Action potential content in human postganglionic sympathetic nerve activity during severe reflex mediated autonomic arousal**

C.D. Steinback, A. Salmanpour, M.F. Frances, and J.K. Shoemaker (Canada)

**P2.19 Concurrent recording of spontaneous muscle sympathetic nerve activity and spontaneous fluctuations in brainstem fMRI signal intensity: 'real-time' imaging of the baroreflex in human subjects**

V.G. Macefield and L.A. Henderson (Australia)

**P2.20 Does acute pain cause a decrease or an increase in muscle sympathetic nerve activity and muscle spindle discharge? Studies of the effects of acute experimental pain in awake human subjects**

I. Birznieks, A.R. Burton and V.G. Macefield (Australia)

**P2.21 Spectral analysis of finger photoplethysmographic waveform variability during blood donation**

G. S. H. Chani, P. M. Middleton, E. O'Lone, E. Steel, R. Carroll, B. G. Celler and N. H. Lovell (Australia)

**P2.22 Enhancing Neural Signals with Stochastic Resonance Electrical Stimulation**

J.M. Serrador, P. P. Breen, G. ÓLaighin, B. Deegan, M. Geraghty, S.J. Wood (USA)

**P2.23 A working draft of a homeostatic model of long-term regulation of arterial blood pressure**

E.S.Prakash (Malaysia)

**P2.24 (Abstract P7.6) Respiratory modulation of baroreflex sensitivity**

Y. C. Tzeng, P. Y. W. Sin, S. J. E. Lucas and P. N. Ainslie (New Zealand)

**P3. Postganglionic neurons and effectors (3<sup>rd</sup> September 1.15 - 3.15 pm)**

**P3.1 Vasodilatation induced by nitric oxide donors is potentiated in endothelium intact rat aortic rings.**

L.M. Bendhack, B.R. Silva, C.N. Lunardi, R.S. Da Silva. (Brazil)

**P3.2 Expression of connexins and neurochemical receptors in human detrusor: differences in gender and in multiple sclerosis**

E. Burcher, F. Shang, L. Liu, K.J. Vaux and R.J. Millard. (Australia)

**P3.3 A new surgical approach for applying neuronal tracers on the rat heart**

I. Grković, V. Košta, M. Marinović Guić and A. Čarić (Croatia)

**P3.4 Autonomic imbalance in mice lacking gp130 in dopamine  $\beta$  hydroxylase-expressing neurons**

D. C. Parrish, E. N. Alston, H. Rohrer, S. A. Aicher, S. M. Hermes and B. A. Habecker (USA & Germany)

**P3.5 The cholinergic system in rat testis is of non-neuronal origin**

S. U. Schirmer, Y. DeGraaf, I. L. Gibbins, A. Meinhardt and R. V. Haberberger (Australia & Germany)

**P3.6 Metabolic inhibition increases intracellular calcium, alters the electrophysiological properties and ganglionic transmission in rat intrinsic cardiac ganglion neurones *in vitro***

A. A. Harper and J. Dyavanapalli (UK)

**P3.7 (HOT 4.1) Cellular mechanism of action of Prostaglandin E<sub>2</sub> on mouse urinary bladder**

S. Kobayter, J. S. Young and K. L. Brain. (UK)

**P3.8 The mouse tracheal brush cell is cholinergic**

G. Krasteva, C. Mühlfeld, T. Papadakis, P. Hartmann, Y. N. Tallini, M. I. Kotlikoff and W. Kummer (Germany & USA)

**P3.9 Muscarinic and nicotinic acetylcholine receptors in mouse bladder afferent neurons and their expression profile in lumbosacral afferents in bladder outlet obstruction**

R. Nandigama, M. Bonitz, T. Papadakis, S. Möller, C. Illig, U. Schwantes, T. Bschleipfer and W. Kummer (Germany)

**P3.10 Chemical denervation of sympathetic nervous system induces abnormal myocardial architecture**

C. Guilbeau-Frugier, B. Honton, F. Despas, G. Genet, A. Pathak, C. Galés and J. M. Senard (France)

**P3.11 (HOT 4.2) Rapid contractile phenotype of vascular smooth muscle is controlled by trophic influence of sympathetic nerves**

O. S. Tarasova, V. A. Puzdrova, N. V. Tarasova, S. V. Mochalov, A. V. Vorotnikov and R. Schubert (Russia & Germany)

**P3.12 Sensitivity of smooth muscle to alpha-adrenoceptor agonists increases transiently in denervated rat tail artery**

D. Tripovic, E. M. McLachlan and J. A. Brock (Australia)

**P3.13 Photo-stimulating effects of low reactive level laser on micturition function in rats**

T. Uchiyama, R. Sakakibara, T. Yamamoto, C. Yamaguchi, T. Yamanishi, T. Hattori, S. Kuwabara. (Japan)

**P3.14 Functional roles of M<sub>2</sub> and M<sub>3</sub> muscarinic receptors in cholinergic nerve-induced contractions in mouse bladder studied with receptor knockout mice**

T. Unno, M. Yamamoto, T. Hayashi, K. Koide, Y. Tanahashi, H. Matsuyama, M. Yamada, J. Wess and S. Komori (Japan & USA)

**P3.15 Dopamine D1 agonist inhibit the bladder contraction and change the activity of striatal bladder relaxation phase related neurons in cats**

T. Yamamoto, R. Sakakibara, K. Nakazawa, T. Uchiyama, T. Ito, Z. Liu, E. Shimizu, T. Hattori and S. Kuwabara (Japan)

**P3.16 Effects of voluntary exercise on cardiac responses to stress and on cardiac contractility and excitability in rats**

M. I. Beig, M. Baumert and E. Nalivaiko (Australia)

**P3.17 (HOT 4.3) Dysautonomia precedes cardiomyopathy in a mouse model of muscular dystrophy**

R. Sabharwal, R. M. Weiss and M. W. Chapleau (USA)

**P3.18 Acute and prolonged effects of pyridostigmine on autonomic ganglionic synaptic transmission in mouse**

Z. Wang and S. Vernino. (USA)

**P3.19 Neural mechanism of reflex inhibition of heart rate elicited by acupuncture-like stimulation in anesthetized rats**

S. Uchida, F. Kagitani and H. Hotta (Japan)

**P3.20 Effects of vagus nerve stimulation on the threshold and incidence of aconitine-induced cardiac arrhythmias in the anesthetized rat.**

J.A. Moffitt, R.M. Firkins, K. Welliver, and P.N. Patel (USA)

**P4 GI Tract (3<sup>rd</sup> September 1.15 - 3.15 pm)**

**P4.1 Equine dysautonomia (grass sickness): immunohistochemical evaluation of the interstitial cells of Cajal and *in vitro* assessment of intestinal electrical activity**

N.P.H. Hudson, C. Fintl, I.G. Mayhew, E.M. Milne, C.N. Hahn and G.T. Pearson (UK & New Zealand)

**P4.2 Neuronal regulation of the esophageal motility in *Suncus murinus* (a house musk shrew)**

T. Shiina, J. Wörl, W. L. Neuhuber, T. Shima, T. Takewaki and Y. Shimizu (Japan & Germany)

**P4.3 Antagonistic effects of des-acyl ghrelin and obestatin on ghrelin-induced enhancement of colorectal motility at the lumbo-sacral defecation center in rats**

H. Hirayama, T. Toda, T. Shiina, H. Kuramoto, T. Takewaki, J. B. Furness and Y. Shimizu (Japan & Australia)

**P4.4 Myenteric interstitial cells of Cajal and M<sub>3</sub> muscarinic receptors regulate the periodicity of peristaltic movements in mouse small intestine**

Y. Tanahashi, N. Waki, T. Unno, H. Matsuyama, M. Yamada, J. Wess and S. Komori (Japan & USA)

**P4.5 Roles of a capsaicin-sensitive neural circuit in peristaltic motility of the rat esophagus**

T. Shima, T. Shiina and Y. Shimizu (Japan)

**P4.6 K<sub>v</sub>7 channels and Na<sub>v</sub>1  $\alpha$ -subunits: mRNA expression in the guinea-pig enteric nervous system**

K. A. Marks, J. C. Bornstein and L. J. Parry (Australia)

**P4.7 Effects and mechanisms of tachykinins-induced prostaglandin E2 biosynthesis in human colon mucosa**

L. Dai, F. Shang, D. S. Perera, E. Burcher and L. Liu (Australia)

**P4.8 Structural features of the tripeptide feG accounting for different biological activities**

J. S. Davison and R. Mathison (Canada)

**P4.9 Molecular changes underlying increases in 5-HT availability in a mouse model of DSS-colitis**

P. P. Bertrand, R. L. Bertrand, A. Barajas-Espinosa, S. Nesbit, and A. E. Lomax (Australia & Canada)

**P4.10 Serotonin availability increases in rat small intestine during a high-fat diet**

S. Senadheera, A. Tanoto, I. Markus, R. L. Bertrand, L. Liu and P. P. Bertrand (Australia)

**P4.11 Exploring short term plasticity in the enteric nervous system: Voltage-sensitive dye recordings of guinea pig myenteric neurons**

R. L. Bertrand, K. Michel, M. Schemann and P. P. Bertrand (Australia & Germany)

**P4.12 Electrochemical measurements of mouse intestinal serotonin and melatonin: Effects of age and daily melatonin supplementation**

P. P. Bertrand, R. L. Bertrand, P. J. Camello and M. J. Pozo (*Australia & Spain*)

**P4.13 Differential expression of mas-related gene (Mrg) receptors in the normal and inflamed murine ileum**

L. R. Avula, D. Knapen, J. Van Op den bosch, L. Vergauwen, R. Blust, L. Van Nassauw and J.-P. Timmermans (Belgium)

**P4.14 The reactions of specific neuron types to intestinal ischemia in the guinea-pig and mouse enteric nervous systems**

L. R. Rivera, M. Thacker, P. Castelucci, R. Bron and J. B. Furness (Australia & Brazil)

**P4.15 Regulation of N-type Ca<sup>2+</sup> channels by protein kinases in the guinea-pig myenteric neurons following inflammation**

K. Nurgali, M. Thacker, L. Pontell and J. B. Furness (Australia)

**P4.16 Role of M2 and M3 muscarinic receptor subtypes in mediating the cholinergic excitatory junction potentials in mouse ileum**

H. Matsuyama, T. Unno, T. Sakamoto, Y. Tanahashi, M. Yamada, J. Wess and S. Komori (Japan & USA)

**P4.17 Changes in expression of cyclooxygenase-2 and gap junction protein connexins in the smooth muscle and mucosa of patients with slow transit constipation**

L. Liu, I. Markus, F. Shang, D. W. King and E. Burcher (Australia)

**P4.18 Electrical properties of subpopulations of thoracic dorsal root ganglion neurons and their implications for the sensory innervation of the jejunum in the adult mouse.**

Tan L.L., Anderson C.R., Bornstein J.C. and Jennings E.A. (Australia)

**P4.19 The enteric nervous system of the gastrointestinal tract may have a role in the regulation of food intake by endogenous cholecystokinin in rats**

A. I. Sayegh and M. C. Washington (USA)

**P4.20 On the role of adenosine (A<sub>2A</sub>) tonus and cross talk with NK<sub>1</sub> and M<sub>3</sub> receptors regulating acetylcholine release from myenteric neurons of the rat ileum**

M. Duarte-Araújo, I. Silva, C. Vieira, P. Marques, F. Ferreirinha, M.T. Magalhães-Cardoso and P. Correia-de-Sá (Portugal)

**P4.21 SST<sub>1</sub> and SST<sub>2</sub> receptors mediate non-adrenergic inhibitory postsynaptic potentials in the submucous plexus of the guinea-pig ileum**

J.P.P. Foong, L.J. Parry, R.M. Gwynne and J.C. Bornstein (Australia)

**P4.22 Cholera toxin induces sustained hyperexcitability in myenteric AH neurons in guinea-pig jejunum**

R.M. Gwynne and J.C. Bornstein (Australia)

**P4.23 Cholera toxin suppresses fatty acid induced motor activity in the guinea-pig jejunum**

C. Fung, M. Ellis, R.M. Gwynne and J.C. Bornstein (Australia)

**P4.24 Breast milk and the enteric nervous system**

K. Schäfer, M. Fichter, M. Klotz, M. De Vos, C. Van Ginneken (Germany & Belgium)

**P4.25 (HOT 2.2) Gastric leptin plays a role in controlling sympathetic vasomotor outflow to the gut in Sprague-Dawley rats**

D. Sartor (Australia)

**P4.26 Characterisation of Effects of CJ-033466, a 5-HT<sub>4</sub> Receptor Partial Agonist, on Visceral Hypersensitivity and Gastric Motility in Rats**

K. Ohashi-Doi, N. Kimura, D. Himaki, J.B. Furness and J.D. Gale (Japan & Australia)

## **P5 Dietary influences and diabetes (3<sup>rd</sup> September 1.15 - 3.15 pm)**

**P5.1 The effect of glucoprivation on tyrosine hydroxylase phosphorylation in adrenals of Sprague-Dawley rats**

L. Bobrovskaya, H. Damanhuri, L.K. Ong, P.W. Dickson, P.R. Dunkley and A.K. Goodchild (Australia)

**P5.2 The effect of voluntary exercise and high fat diet on tyrosine hydroxylase phosphorylation in male Sprague-Dawley rats exposed to early life stress**

L.K. Ong, J. Maniam, P.R. Dunkley, L. Bobrovskaya and M.J. Morris (Australia)

**P5.3 Effects of inhibition of the nuclear factor kappa B cascade on function of the gastric fundus innervation in diabetic rats**

M. A. Cotter, T. M. Gibson and N. E. Cameron (UK)

**P5.4 Contribution of NPY Y<sub>1</sub> and NPY Y<sub>2</sub> receptors to sympathetic vasoconstriction in the diabetic streptozotocin-treated rat tail artery at two time points**

P. Dickson, D. Bell, N. Scholfield and C. Johnson (UK)

**P5.5 Adrenomedullin and its receptor system in rat sympathetic neurons and their regulation in long-term diabetes**

W. Kummer, S. Wiegand, U. Pfeil, J. Slavikova and M. Chottova-Dvorakova (Germany & Czech Republic)

**P5.6 Neuritin message is increased by testosterone in cultured rat pelvic autonomic neurons but is unchanged in pelvic ganglia in experimental diabetes**

G. L. Lee and T. D. Purves-Tyson (Australia)

**P5.7 Grain of paradise extracts and its active principal component 6-paradol activate the sympathetic nerve activity brown adipose tissue in rats**

Y. Shimizu, M. Iwami, F. A. Mahmoud, H. Hirayama, T. Shima, I. Suzuki and T. Shiina (Japan).

**P5.8 Comfort food or voluntary exercise produces similar beneficial effects on stress responses following maternal separation in male rats**

J. Maniam and M. J. Morris (Australia)

**P5.9 Fat mass and obesity associated gene (FTO) expression in autonomic areas of rat brain.**

T.F.C. Batten, A. Maqbool, J.C. Kaye and E.J. Spary (UK)

**P5.10 Role of beta adrenergic receptors in the rodent diabetic retina**

R. J. Walker, Y. Jiang, and J. J. Steinle (USA)

**P6 Development and Neuronal Repair (4<sup>th</sup> September 1.45 – 3.45 pm)**

**P6.1 Development of an *in vitro* system for time-lapse analysis of cell division in mouse sympathetic ganglia**

K. N. Cane and C. R. Anderson (Australia)

**P6.2 Cell division in the developing mouse stellate ganglion**

D. G. Gonsalvez, K. N. Cane and C. R. Anderson (Australia)

**P6.3 Time-lapse confocal analysis of the formation of the secondary, permanent chain of sympathetic ganglia in the chick**

J. C. Kasemeier-Kulesa, P. M. Kulesa and F. Lefcort (USA)

**P6.4 Autonomic neurons expressing cannabinoid and vanilloid receptors in postnatal development**

P. M. Maslyukov and A. D. Nozdrachev (Russia)

**P6.5 Immunohistochemical analysis of neuron types in the enteric nervous system (ENS) of larval and adult zebrafish (*Danio rerio*)**

L. Uyttebroek, M. Dirckx, F. Harrisson, G. Hubens, I. T. Shepherd, J.-P. Timmermans and L. Van Nassauw (Belgium and USA)

**P6.6 Reactive Gliosis in Hirschsprungs disease**

K.-H. Schäfer, I. Jester, M. Rollmann, C.Hagl, S. Holland-Cunz (Germany)

**P7 Central cardiovascular control (4<sup>th</sup> September 1.45 – 3.45 pm)**

**P7.1 (HOT 6.1) Highlights on a new pathway involved in the alteration of reflex bradycardia in response to stress: study in rats and mice**

F. Netzer, J.-F. Bernard and C. Sévoz-Couche<sub>1</sub> (France)

**P7.2 Control of cardiac rate, atrioventricular conduction and ventricular contractility and relaxation by the paraventricular nucleus of the hypothalamus in the anaesthetised rat**

L. M. Salo, C. R. Anderson and R. M. McAllen (Australia)

**P7.3 (HOT 5.1) Different approaches to evaluate an interaction of purinergic and nitrenergic mechanisms in the nucleus tractus solitarius neurons of rats**

E.M. Granjeiro, G.P. Pajolla, D. Accorsi-Mendonça, L.G.H. Bonagamba, R.M. Leão and B.H. Machado. (Brazil)

**P7.4 (HOT 5.2) Whole cell patch recording of sympathetic pre-motor neurons in the medulla oblongata in the *in situ* arterially perfused preparation of the neonatal rat**

T. Koganezawa, N. Terui, A.E. Pickering and J. F. R. Paton. (Japan & UK)

**P7.5 (HOT 5.3) Effects of basal forebrain stimulation on nerve growth factor secretion and blood flow in the parietal cortex in adult and aged rats**

H. Hotta, F. Kagitani and S. Uchida (Japan)

**P7.6 Respiratory modulation of baroreflex sensitivity**

Y. C. Tzeng, P. Y. W. Sin, S. J. E. Lucas and P. N. Ainslie (New Zealand)

**P7.7 (HOT 3.2) Exposure to chronic intermittent hypoxia promotes exaggerated sympathetic reflexes but blunted adrenergic vascular reactivity in Sprague-Dawley rats**

A. Q. Silva and A. M. Schreihofer. (USA)

**P7.8 (HOT 3.1) Role of cAMP dependent effectors and voltage gated calcium channels in the rat rostral ventrolateral medulla and in the spinal cord in the tonic and reflex control of arterial pressure in hypertension and normotension**

A. K. Goodchild, V. J. Tallapragada, S. Hassan and N. N. Kumar. (Australia)

**P7.9 Inhibition of central angiotensin AT-1 receptors inhibits cardiac but not renal sympathetic nerve activity in sheep with heart failure**

S.G. Hood, R. Ramchandra, and C.N. May (Australia)

**P7.10 Overexpression of AT1 angiotensin II receptors in the sympathetic premotor neurons is associated with an increase in oxidative stress in renovascular hypertension in Wistar rats**

E. Barbosa de Oliveira-Sales, E. E. Nishi, B. A. Carillo, M. A. Boim, M. S. Dolnikoff, C. T. Bergamaschi and R. R. Campos (Brazil)

**P7.11 A comparison of the cardiovascular and locomotor effects of orexin a after intracerebroventricular and intrathecal administration in the conscious rat**

L. N. L. Luong, D. M. L. Vianna and P. Carrive (Australia)

**P7.12 Neurochemical organisation of tonic and reflex cardiac vagal outflow in the rat**

C. M. Hildreth and A. K. Goodchild (Australia)

**P7.13 Spinophilin affects central angiotensin II- and L-NAME induced changes in blood pressure regulation in mice**

A. C. da Costa-Goncalves, M. A. P. Fontes, J. Janke, J. Tank, R. Plehm, A. Diedrich, J. Jordan, F. C. Luft and V. Gross (Germany & USA)

**P7.14 Distinct contributions of different regions of the paratrigeminal nucleus in cardiorespiratory and baroreceptor functions of Wistar rats**

L. O. Sousa and C. J. Lindsey (Brazil)

**P7.15 Electrical behavior of paratrigeminal nucleus neurons during blood pressure changes in freely behaving Wistar rats**

L. O. Sousa and C. J. Lindsey (Brazil)

**P7.16 Neurochemical lesion of the paratrigeminal nucleus attenuates sympathetic and cardiac reflex responses to changes of blood pressure in Wistar rats**

L. O. Sousa and C. J. Lindsey (Brazil)

**P7.17 Very deep plane of urethane/ $\alpha$ -chloralose anaesthesia induces unexpected bradycardia during lower body negative pressure in male Sprague-Dawley rats**

C. W. Usselman, I. Welch, L. Mattar and J. K. Shoemaker (Canada)

**P7.18 Nitric oxide synthase-immunoreactive neurons in the rat ventrolateral medulla and their relationship to barosensitive neurons**

G. M. Etelvino, D. B. Zoccal, V. A. Braga and I. J. Llewellyn (Australia & Brazil)

**P7.19 Role of A2 Noradrenergic neurons in renal vasodilation and sympathoinhibition induced by hypernatremia in anesthetized rats**

G. R. Pedrino, D. A. Rosa, A. H. Freiria-Oliveira, D. S. A. Colombari and S. L. Cravo (Brazil)

**P7.20 Gene expression profiles of major chemokines in the nucleus tractus solitarii of the spontaneously hypertensive rat**

H. Waki<sup>1</sup>, S. S. Gouraud<sup>1</sup>, M. E. R. Bhuiyan<sup>1</sup>, M. Takagishi<sup>1</sup>, A. Kohsaka<sup>1</sup>, J. F.R. Paton<sup>2</sup> and M. Maeda (UK & Japan)

**P7.22 Somatic stimulation reveals unique response patterns in different sympathetic nerves in the rat**

P. G. R. Burke, Q. Li, J. Neale, S. McMullan, P. M. Pilowsky and A. K. Goodchild (Australia)

**P7.23 (HOT 3.3) Effects of activation of ghrelin receptors in the spinal cord on cardiovascular function in the rat**

R. Bron, D. M. Ferens, L. Yin, B. Hunne, K. Ohashi-Doi, P. D. Kitchener, Y. Shimizu and J. B. Furness (Australia & Japan)

**P7.24 Conditioned fear to context: cardiovascular and locomotor correlates in mice**

K. H. C. Choy, C. A. Chavez and D. N. Mayorov (Australia)

**P7.25 Activation of tyrosine hydroxylase in the A8, A9 and A10 cell groups following hypotension and glucoprivation in Sprague Dawley rat**

H. Damanhuri, L. K. Ong, L. Bobrovskaya, P. R. Dunkley and A. K. Goodchild (Australia)

**P7.26 (HOT 2.3) Recording from single postganglionic sympathetic axons in conscious rats during development of cardiovascular disease**

M. M. Knuepfer, S. K. Burris, M. Busauskas and H. Yemane (USA)

**P7.27 Ganglionic processing in vasomotor pathways**

B. Bratton, P. Davies, W. Jänig and R. McAllen. (Australia & Germany)

**P7.28 Differential control of sympathetic vasomotor and respiratory function by the dorsal periaqueductal grey in the midbrain of the rat**

K. Iigaya, J. Horiuchi, L.M. McDowall and R.A.L. Dampney (Australia)

**P7.29 Identification and distribution of inositol trisphosphate receptor subtypes in catecholaminergic cell groups in Sprague Dawley rat brainstem and midbrain**

N. Kumar and A. Goodchild (Australia)

**P7.30 The neural pathways subserving the cardiovascular and respiratory responses during voluntary exercise and airpuff startle in the rat**

A.C.B. Lam, J. Horiuchi, L.M. McDowall, T. Furlong and R.A.L. Dampney (Australia)

**P7.31 Vasomotor and respiratory responses evoked from the dorsolateral periaqueductal grey in the rat are mediated by the dorsomedial hypothalamus**

J. Horiuchi, L.M. McDowall and R.A.L. Dampney (Australia)

**P7.32 A Novel Osmopressor Mechanism Linked to TRPV4**

J. McHugh, N.R. Keller, M. Appalsamy, S.R. Raj, A. Diedrich, I. Biaggioni, J. Jordan, D. Robertson. (USA)

**P7.33 Intracellular recording from cardiac ganglion neurons receiving functional vagal Inputs**

A.E. Pickering<sup>1</sup> R.M. McAllen, A. A. Harper, J. F. R. Paton (UK, Australia).

**P7.34 Reduced brainstem vascular conductance precedes onset of hypertension in the spontaneously hypertensive rat: is there cause for causality?**

M. Cates, A. P.L. Abdala, P. D. Langton and J. F.R. Paton (UK)

**P8 Arousal, stress, thermoregulation and conditioning (4<sup>th</sup> September 1.45 – 3.45 pm)**

**P8.1 Panting rats: new index of arousal?**

M.I. Beig and E. Nalivaiko (Australia)

**P8.2 *In situ* detection of stress-induced intracellular production of superoxide in mouse brain**

C. A. Chavez, K. H. C. Choy and D. N. Mayorov (Australia)

**P8.3 (HOT 6.2) Parasympathetics protect rat brain from stroke**

W.T. Talman, D. Easker, D. N. Dragon and L.H. Lin (USA)

**P8.4 Vagus nerve and central nervous system in peritoneal inflammation, cell migration and fever in the Wistar rat**

C. J. Lindsey, C. R. Fiore and L. O. Sousa (Brazil)

**P8.5 A small group of neurons in the medulla fine-tune body temperature control thermoregulation and fever by controlling heat loss in the Wistar rat. II.**

C. J. Lindsey, L. O. Sousa and G. E. P. Souza (Brazil)

**P8.6 Different populations of prostaglandin EP3 receptor-expressing rat preoptic neurons project to two fever-mediating sympathoexcitatory brain regions**

Y. Nakamura, K. Nakamura and S. F. Morrison (USA)

**P8.7 Evidence of a GABAergic projection from the central nucleus of the amygdala to the ventrolateral periaqueductal gray in rats**

N. D. Olsen, N. N. Kumar, A. K. Goodchild and P. Carrive (Australia)

**P8.8 Treatment of Bedwetting (nocturnal enuresis) in Australia and New Zealand with the bell-and-pad apparatus**

G. B. Marshall, J. Trinder, and J. C. Bornstein. (Australia)

**P8.9 (HOT 6.3) Neuropeptide Y gene polymorphisms influence the emotional response to acute infectious illness.**

U. Vollmer-Conna<sup>1</sup>, B Piraino and A. Lloyd (Australia)

**P8.10 The effect of social conflict on tyrosine hydroxylase phosphorylation in catecholamine-producing cells from Sprague Dawley rats.**

L.K. Ong, L. Bobrovskaya, F.R. Walker, T.A. Day, P.W. Dickson and P.R. Dunkley. (Australia).

**P8.11 Delineating a novel neuronal circuit of melanocortin receptor 4 (MC4R) in the paraventricular nucleus of the hypothalamus (PVH) directly projecting to the brainstem raphe pallidus nucleus (RPa) area in the regulation of thermogenesis of rodent.**

Yan Gu, Maozhen Qin, Zhigang Shi, Liugen Lei and Wei Fan (USA)

## **P9 Sensory and Inflammation (4<sup>th</sup> September 1.45 – 3.45 pm)**

**P9.1 Mechanogated two-pore-domain potassium channels in murine lungs: special focus on sensory airway receptors**

R. Lembrechts, I. Brouns, I. Pintelon, K. Schnorbusch, J.-P. Timmermans and D. Adriaensen (Belgium)

**P9.2 Sensory pathways from the genital tract to lumbar and sacral autonomic outflows in female guinea-pigs**

I. L. Gibbins, S. Y. Yuan, P. I. Vilimas, V. P. Zagorodnyuk and J. L. Morris (Australia)

**P9.3 The influence of sympathetic activity on inflammation in dorsal root ganglia following sciatic nerve transection in rats**

P. Hu and E. M. McLachlan (Australia).

**P9.4 Effects of noxious cutaneous mechanical stimulation on dorsal spinal cord blood flow in anesthetized rats**

M. Kurosawa, H. Toda, H. Maruyama, S. Fujisawa and B. Budgell (Japan & Canada)

**P9.5 Carbon dioxide suppresses hypoxia-enhanced expression of TH and VEGF mRNA in the rat carotid body**

J. Wakai, M. Yamaguchi-Yamada and Y. Yamamoto (Japan)

**P9.6 A newly developed co-culture of rat pelvic afferent neurons and urothelia.**

M. Quinlivan and J. R. Keast (Australia).

**P9.7 ATP mediates the sensation of “urgency” in women with overactive bladder.**

Y. Cheng, K.J. Mansfield, C.A. Walsh, E. Burcher and K.H. Moore (Australia)

**P9.8 Characterization of ATP release from cultured pig urothelial and detrusor muscle cells by stretch, acid, capsaicin and tachykinins**

Y. Cheng, K.J. Mansfield, E. Burcher and K.H. Moore (Australia)

**P9.9 Discovery of phosphodiesterase-4 inhibitors for treatment of inflammatory and neural diseases**

H. Ke (USA)

**9.10 Postnatal maturational changes in lumbosacral visceral afferent and preganglionic neurons in female rats.**

A.M. O'Connor and J. R. Keast (Australia)

**9.11 Vibration-evoked allodynia and hypoalgesia during muscle pain: Differential**

**contributions of cutaneous small-diameter and deep large-diameter mechanoreceptors**

S. S. Nagi, V. G. Macefield and D. A. Mahns (Australia)