AuPS/PSNZ/ASB Joint Meeting - UNSW - 2-5 December 2012

Sunday 2nd December 2012
17:30 Opening Ceremony Location: Mathews A **AuPS Invited Lecture - Prof Joe Lynch** 17:45 **J.W. Lynch**: The glycine receptor - a new therapeutic target for chronic inflammatory pain *1P*
Welcome reception Location: Pavillion

Monday 3rd December 2012

Mathews A

New insights into cardiac Ca^{2+} handling and excitability
Chair: Yue-kun Ju

08:30 **M. Lei**: P^{21} activated kinase-1 as a key regulator of cardiac automaticity and excitability *2P*
09:10 **D.G. Allen**: Involvement of calcium in pacemaker firing *3P*
09:30 **M.S. Imtiaz**: Role of intracellular Ca^{2+} in sinoatrial node pacemaking *4P*
09:50 **J.N. Edwards**: Effects of redox environment on calcium alternans in isolated rabbit cardiomyocytes *5P*
10:10 **L.C. Hool**: Plasma membrane Ca^{2+} channel handling and arrhythmogenesis *6P*

Mathews B

Assessment in physiology - Changing philosophy and practice
Chair: Lesley Ulman

08:30 **D. Boud**: Changing assessment: shifting the emphasis to learning and use *7P*
09:10 **Y.M. Hodgson**: Students assessing each other - why and how? *8P*
09:30 **D.A. Saint**: Assessment - What, why and how? *9P*
09:50 **P. Poronnik**: Developing assessment as a collaborative endeavour *10P*

Mathews C

Advances in methods for intestinal motility
Chair: Marcello Costa

08:30 M. Costa: Introduction
08:34 **G. O'Grady**: Mapping and modelling human gastric slow wave activation in health and disease *11P*
09:03 **P.G. Dinning**: Multimodal recordings of intestinal motor activity *12P*
09:32 **J.C. Bornstein**: Computational modelling of enteric motor patterns *13P*
10:01 **M. Costa**: Spatio-temporal maps of intestinal motor patterns *14P*
10:30 End of session

Mathews D

Free Communications - Exercise Physiology
Chair: Glenn Wadley

08:30 **G.D. Lamb**: Calcium-dependent proteolysis of junctophilin-1 and junctophilin-2 in skeletal and cardiac muscle *15P*
08:45 **S.C. Gandevia**: Interpolated twitches decline progressively during a tetanic contraction of human *adductor pollicis 16P*
09:00 **S.G. Wette**: Effects of high intensity power resistance exercise and feeding on mechanosensing and stress-related gene expression in human skeletal muscle *17P*
09:15 **S. Green**: Functional sympatholysis is a time- and intensity-dependent process in the contracting human calf muscle *18P*
09:30 **C.R. Brandner**: Acute cardiac responses to blood flow restriction strength exercise *19P*
09:45 **C.E. Taylor**: Neural control of blood flow to a contracting muscle: roles of central command and metaboreceptors *20P*
10:00 **J. Yamauchi**: The effects of exercise duration on cerebral oxygenation in the human prefrontal cortex at moderate exercise intensity *21P*
10:15 **G.D. Wadley**: Team Based Learning to undergraduates at Deakin University *22P*

10:30 Morning tea

Mathews A

Molecular insight via advanced fluorescence microscopy
Chair: Till Böcking

11:00 **D.M. Hatters**: New flow cytometry tricks to view protein conformations in cells and their subcellular localization *23P*
11:30 **Y. Gambin**: Microfluidic highways: speeding up on protein interaction networks *24P*
12:00 **N. Plachta**: Imaging transcription factors in the living mouse embryo *25P*
12:30 **D.M. Owen**: Evidence for, and function of, sub-resolution ordered membrane domains *26P*

Mathews B

Cystic fibrosis: Today and tomorrow
Chair: Kirk Hamilton

11:00 **R.A. Frizzell**: Fluorogen activating proteins report corrector-mediated restoration of mutant CFTR trafficking to the cell surface and its regulated peripheral recycling *27P*
11:45 **P.T.P. Bye**: Hypertonic saline nebulisation for pulmonary disease in people with cystic fibrosis *28P*
12:10 **C.E. Wainwright**: Early lung disease in cystic fibrosis *29P*
12:35 **D. Parsons**: Developing a gene therapy for cystic fibrosis airway disease *30P*

Mathews C

Bridging the gap between molecular reductionism and physiology- the usefulness of 'omics'
Chair: Matthew Watt

11:00 **T.R. Koves**: Using targeted mass spectrometry-based metabolomics to dissect metabolic flux in health and disease *31P*
11:35 **M.J. Watt**: Identification of factors secreted from the fatty liver: impact on metabolic function in other tissues *32P*
12:00 **M.A. Febbraio**: Muscle secretory factors - where are we at a decade later? *33P*
12:30 **K. Walder**: A gene expression signature for insulin resistance *34P*

Mathews D

Free Communications - General Physiology
Chair: Andrew Moorhouse

11:00 **E. Kheradpezhouh**: The role of TRPM2 channels in paracetamol overdose-induced Ca^{2+} entry in hepatocytes *35P*
11:15 **K. Karisnan**: Gestational age at time of the initial exposure to lipopolysaccharide determines the severity of diaphragmatic contractile dysfunction in preterm lambs *36P*
11:30 **A.D. Hanna**: Anthracycline-induced dysfunction of cardiac SR Ca^{2+} handling: a potential pathway to anthracycline-induced cardiotoxicity *37P*
11:45 **I.Y. Kuo**: Calcium binding to the EF hand motif regulates polycystin 2 function *38P*
12:00 **K.W. Stewart**: The role of a newly discovered pancreatic islet peptide in the control of insulin secretion *39P*
12:15 **D.J. Keating**: Huntingtin-associated protein 1 (HAP1) regulates exocytosis, vesicle localization and interacts with multiple vesicle proteins *40P*

13:00 Posters and Lunch

Monday 3rd December 2012

Mathews A
Location: Pavillion

Mathews B

Mathews C

Mathews D

Presenting authors of posters on odd numbered boards in attendance.

Spectral imaging in physiology - a highlight of techniques
Chair: Robyn Murphy

14:30 **V.G. Macefield**: Combining microelectrode recordings from human peripheral nerves with functional magnetic resonance imaging of the brain *94P*

14:55 **P.R. Gooley**: AMP-activated protein kinase β subunit requires internal motion for optimal carbohydrate binding *95P*

15:20 **D. Stapleton**: The how and why of glycogen ultrastructure - implications for physiology and disease *96P*

15:45 **R.M. Murphy**: Single muscle fibre analysis reveals differential fibre type, localization and stimulation responses of enzymes important for glycogen metabolism: insights into muscle glycogen structure and function *97P*

Free communications - Channels: Molecular Interactions
Chair: Boris Martinac

14:30 **A. Mechler**: Salt concentration effects on the viscoelasticity of supported bilayers *98P*

14:45 **E. Deplazes**: Combining experiment and simulations to characterize the interactions of a sea-anemone toxin with the analgesic target acid-sensing ion channel 3 *99P*

15:00 **M.D. Perry**: The S4 domain is directly involved in determining the voltage sensitivity of Kv11.1 channel inactivation *100P*

15:15 **B.A. Cromer**: Molecular mechanisms for agonist selectivity in inhibitory Cys-loop ligand-gated ion channels *101P*

15:30 **T. Nomura**: Orientation of the bacterial mechanosensitive channel MscS in liposomal membranes *102P*

15:45 **B. Martinac**: Ion selectivity of the mechanosensitive channel MscS is determined by charged residues within the cytoplasmic vestibulum *103P*

Free communications - Cardiac Physiology
Chair: Lea Delbridge

14:30 **T.F. Reardon**: Mechanisms contributing to angiotensin II induced increases in nerve-evoked contractions of mouse tail artery *104P*

14:45 **D.A. Saint**: Asian immigrants to Australia show a lower sympathetic component to the baro-reflex than resident caucasians, as measured by heart rate variability analysis *105P*

15:00 **A.W. Quail**: Propofol selectively modifies the arterial chemoreflex during severe hypoxia in the rabbit *106P*

15:15 **D.O. Schwenke**: The serotonin pathway - a therapeutic target for pulmonary hypertension? Assessing vascular function using synchrotron radiation microangiography *107P*

15:30 **J.R. Bell**: An augmented CaMKII response in the post-ischemic female heart is not proarrhythmic - towards understanding the sex-specificity of CaMKII pathophysiology *108P*

15:45 **A. Li**: A cardiac troponin I mutation that causes familial dilated cardiomyopathy *109P*

Free Communcations - Neuro-signalling
Chair: John Power

14:30 **K.E. Froud**: Modulation of cochlear amplifier performance by contralateral suppression *110P*

14:45 **R. Raghupathi**: Enterochromaffin cells release 5-HT with synaptic kinetics *111P*

15:00 **J.M.E. Cederholm**: Transcriptional responses to noise stress in mice *112P*

15:15 **A.E. Harasta**: Septal glucagon-like peptide 1 receptors (GLP-1Rs) mediate the behavioural effects of cocaine *113P*

15:30 **L.G.T. van den Heuij**: Human amniotic epithelial cell therapy for preterm perinatal asphyxia *114P*

15:45 **C.J. Schwiening**: Pre-synaptic pH changes and vesicle fusion at the *Drosophila* neuromuscular junction *115P*

16:00 Afternoon tea

Monday 3rd December 2012

Mathews A

Perinatal asphyxia: adaptation and consequences

Chair: Alistair Jan Gunn

16:30 **A.J. Gunn**: Making birth safer *116P*

16:40 **S.B. Hooper**: Resuscitating the asphyxic infant at birth *117P*

17:05 **G.R. Polglase**: Brain inflammation and injury resulting from chorioamnionitis is exacerbated by resuscitation in preterm lambs *118P*

17:30 **S.L. Miller**: New strategies to protect the newborn brain *119P*

17:55 **L. Bennet**: Maternal glucocorticoids: timing is everything for the fetal brain *120P*

Mathews B

A vignette of TRP ion channel physiology

Chair: Gary Housley

16:30 **L. Birnbaumer**: TRPC channels: An overview *121P*

16:50 **G.J. Barritt**: Multiple roles for transient receptor potential (TRP) non-selective cation channels in liver function *125P*

17:15 **G.Y. Rychkov**: TRPM2 channels in oxidative stress-induced cell death *126P*

17:40 **N.W. Bunnett**: Proteolytic regulation of TRP channels: implications for pain and neurogenic inflammation *127P*

18:05 **S.L. Sandow**: Myoendothelial microdomains and TRPC3: anatomical links to function *129P*

Mathews C

Free Communications: ASB Young Investigator & Spectroscopy

Chair: Jamie Vandenberg

16:30 **D.R. Whelan**: Quantification and detection of DNA in eukaryotic cells using Fourier transform infrared spectroscopy *130P*

16:45 **T.D.M. Bell**: Super-resolution imaging of cells using a home built dSTORM microscope costing less than A$100k *131P*

17:00 **T. Holm**: *d*STORM super-resolution made cheap and easy *132P*

17:15 **M.-A. Sani**: Antimicrobial peptide activity in a competitive lipid environment *133P*

17:30 **C.G. Cranfield**: Tethered Bilayer Lipid Membranes (tBLMs) to measure pore formation by antimicrobial peptide (AMP) insertion *134P*

17:45 **P.S. Tan**: Voltage-sensing domain mode shift is coupled to the activation gate by the N-terminal tail of hERG channels *135P*

18:00 **T.A. Hilder**: Characterizing various inward rectifier potassium channels *136P*

18:15 **R.J. Clarke**: Kinetic comparisons of heart and kidney Na^+,K^+-ATPases *137P*

Mathews D

Free Communications - Muscle Metabolism/Signalling

Chair: Matthew Watt

16:30 **A.J. Hoy**: Regulation of plasma ceramide levels with fatty acid oversupply - evidence that the liver detects and secretes *de novo* synthesized ceramide *138P*

16:45 **S. Lamon**: Disruption of skeletal muscle mitochondrial network genes and miRNAs in amyotrophic lateral sclerosis *139P*

17:00 **J.G. Ryall**: A switch in metabolism underlies the initiation of MyoD transcription in satellite cells *140P*

17:15 **R. Koopman**: Glycine, a pharmaco-nutrient that protects muscle cells from cachectic stimuli *in vitro* and *in vivo 141P*

17:30 **V.C. Foletta**: Suppression of NDRG2, a novel PGC-1α and PGC-1β target gene, contributes to the metabolic profile and protein synthesis rates of skeletal muscle cells *142P*

17:45 **D.J. Ham**: Citrulline protects muscle cells from cachectic stimuli and preserves protein metabolism *in vitro 143P*

18:00 **S. Trajanovska**: Role of glycogen depletion in muscle fatigue *144P*

18:15 **C.W. Gray**: Local sensitivity analysis of GLUT4 translocation in response to insulin *145P*

19:30 Student Member Function - BBQ in the Whitehouse

Tuesday 4th December 2012

Mathews A	Mathews B	Mathews C
AuPS Plenary Lecture - Scandinavian Exchange Lecturer - Prof Håkan Westerblad 08:30 **H. Westerblad**: Muscle fatigue *146P*		
09:30 Morning tea		
Calcium signalling in microdomains essential to normal cell function Chair: Bradley Launikonis 10:00 **I.F. Smith**: Imaging the motility of inositol trisphosphate receptors in intact mammalian cells using single particle tracking photoactivated localization microscopy (sptPALM) *147P* 10:30 **I.D. Jayasinghe**: Three-dimensional analysis of the tubular networks in mammalian and amphibian skeletal muscle fibres *148P* 11:00 **B.S. Launikonis**: Specialization of the skeletal muscle junctional membranes allow rapid activation of store-operated calcium entry, tightly controlled by $[Ca^{2+}]_{SR}$ *149P* 11:30 **P. Thorn**: Focal secretion of insulin within intact islets of langerhans *150P*	**Science at the high performance computing frontier** Chair: Adam Hill 10:00 **E. Afgan**: Genomics Virtual Laboratory *151P* 10:30 **B. Corry**: Long time scale molecular simulations for understanding ion channel function *153P* 11:00 **P.M.F. Nielsen**: Sharing physiological models *154P* 11:30 **A. Sadrieh**: Massive parallelization of cardiac simulations using unconventional processing architectures *155P*	**Free communications - Transporters** Chair: Tim Murphy 10:00 **R.J. Cater**: Mapping the chloride permeation pathway of a human glutamate transporter *156P* 10:15 **A.J. Scopelliti**: Molecular determinants for functional differences between the neutral amino acid transporter ASCT1 and acidic amino acid transporters of the EAAT family *157P* 10:30 **N.L. Absalom**: γhydroxybutyrate activates specific $GABA_A$ receptor subtypes *158P* 10:45 **J.E. Carland**: Oleoyl L-carnitine inhibits glycine transport by GLYT2 *159P* 11:00 **R.M. Ryan**: Using N-modified aspartate analogues to probe the 'open-to-inside' structure of the bacterial aspartate transporter, Glt_{Ph} *160P* 11:15 **B.C. McIlwain**: Conformational dynamics of an archaeal aspartate transporter are determined by the lipid bilayer *161P* 11:30 **K.E. Polglaze**: Benzamil, but not triamterene, reduces mechanosensitive 5-HT release from EC cells of guinea pig intestine *162P* 11:45 **S. Senadheera**: Enhanced T-type calcium channel function, but not L-type or TRPC3 channels, augments uteroplacental arterial vascular tone in late pregnancy *163P*
12:00 Posters and Lunch - ASB AGM (Mathews 312) - PSNZ AGM (Mathews 125) Presenting authors of posters on even numbered boards in attendance.		
Muscular adaptations to exercise: mechanisms at play Chair: David Simar 13:30 **R. Barres**: Adaptations to exercise: the role of epigenetic changes *164P* 14:00 **B.E. Kemp**: AMPK signaling and exercise *165P* 14:30 **J.A. Hawley**: Sending the message: Training-nutrient interactions to stimulate mitochondrial biogenesis *166P* 15:00 **J.E. Sharman**: Exercise central haemodynamics: mechanisms and relation to end organ damage *167P*	**Integrative physiology of the heart** Chair: Bruce Smaill 13:30 **D.S. Loiselle**: Multi-scale cardiac energetics *168P* 13:50 **L.M.D. Delbridge**: Cardiac ischemia - different contexts and different consequences *169P* 14:10 **M.L. Trew**: Cardiomyocyte group architecture and electrical activation pathways in the heart *170P* 14:30 **A.P. Hill**: Computational analysis of the contribution of ionic conductances to ECG parameters *171P*	**Free communications - Molecular Dynamics** Chair: Toby Allen 13:30 **S. Kuyucak**: Rational drug design from toxins - how rational can one get? *172P* 13:45 **R. Chen**: Binding of scorpion toxins to the voltage sensors of Na^+ channels: molecular dynamics studies *173P* 14:00 **D. Gordon**: Brownian dynamics simulation of ion channel block by polypeptide toxins *174P* 14:15 **M. Thomas**: Biological channel mimics for use as desalination membranes *175P* 14:30 **H. Yu**: Catalysis *in silico 176P* 14:45 **M.L. O'Mara**: The effect of ATP binding on the conformation of P-glycoprotein *177P* 15:00 **Z. Jia**: The effect of environment on the recognition and binding of vancomycin to native and resistance forms of lipid II *178P* 15:15 **T.W. Allen**: Long molecular dynamics simulations to explore ion channel function *179P*
15:30 Afternoon tea		

Tuesday 4th December 2012

Mathews A

Free communications - Gene for Speed

Chair: Peter Houweling

16:00 **N. Eynon**: Overcoming the barrier of sample size: The ACTN3 R577X polymorphism across three groups of elite European athletes *180P*

16:15 **F. Garton**: Deficiency of a fast twitch muscle fibre protein alters muscle adaptation in response to denervation and immobilization *181P*

16:30 **M.W. Hogarth**: α-Actinin-3: a novel genetic modifier of Duchenne muscular dystrophy *182P*

16:45 **S.I. Head**: Alterations in Ca^{2+} transients and SR function in isolated fast fibres from α-actinin-3-deficient speed gene knockout mice *183P*

17:00 **P.J. Houweling**: Metabolic consequences of α-actinin-3 deficiency - more than a structural muscle protein! *184P*

17:15 **M. Kreissl**: Mutations in the α-tropomyosin-slow gene (TPM3) cause sarcomeric dysfunction in slow muscle fibres *185P*

Mathews B

Free Communications - Cardiac Physiology

Chair: Nicole Beard

16:00 **A.F. Dulhunty**: Functional analyses of a cluster of CCD mutations reveals a gating module within TM6 of RyR1 *186P*

16:15 **K. Walweel**: Regulation of human RYR2 by intracellular Ca^{2+} and Mg^{2+} *187P*

16:30 **J. Li**: Adrenergic stimulation increases RYR2 activity *via* intracellular Ca^{2+} and Mg^{2+} regulation *188P*

16:45 **D. Mehra**: Role of cardiac Na^{+} channel blockers and Mg^{2+} in inhibiting the cardiac calcium release channel *189P*

17:00 **J. Liu**: Store-operated calcium entry activity revealed by confocal live cell calcium imaging in isolated mouse pacemaker cells *190P*

17:15 **A. Gogoi**: Autonomic functions and serum leptin levels in normal and obese, a comparative study *191P*

Mathews C

PSNZ - John Hubbard and Mary Bullivant Student Prize Competition

16:00 Peter Hunter: John Hubbard Prize

16:05 **J.-C. Han**: Does the heart really operate at 'isoefficiency'? *192P*

16:30 Kirk Hamilton: Mary Bullivant Prizes

16:35 **H.P.A. Thaung**: Sympathetic modulation of cardiac function in diabetes - *in vivo* and *ex vivo* study *193P*

17:00 **S. Fan**: Inflammation of the proximal colon of $IL10^{-/-}$ mice induced by *Helicobacter typhlonius* infection reduces anion secretion and expression of the $NaHCO_3$ cotransporter, NBCe1 *194P*

18:00 Conference Dinner and Awards

Wednesday 5th December 2012

Mathews A	Mathews B	Mathews C
Invited Lecture - Prof Lutz Birnbaumer 09:00 **L. Birnbaumer**: TRPC channels: on-going discovery of molecular physiological function in relation to store operated Ca^{2+} entry and Orai proteins *195P*		
10:00 Morning tea		
Brain dysfunction and translational neurophysiology Chair: Andrew Moorhouse 10:35 **A. Yamanaka**: Optogenetical approach to reveal the regulatory mechanism of instinctive behaviors by the hypothalamic neurons *196P* 10:55 **J. Nabekura**: Glia and neuron interactions: their role in synapse remodeling *in vivo 197P* 11:15 **A.J. Moorhouse**: Membrane transporters regulating inhibitory neurotransmitter signaling in health and disease *198P* 11:30 **R. Rajan**: Traumatic brain injury and sensory cortex: using barrel cortex to understand functional changes in the injured brain *199P* 11:45 **D. Burke**: Excitability and action potential in human axons *200P* 12:05 **M.C. Kiernan**: Central assessment of motor dysfunction using transcranial magnetic stimulation *201P*	**Autonomic physiology - nutrient sensing in the GI tract** Chair: Paul Bertrand 10:30 **H.E. Raybould**: Nutrient-sensing in the GI tract: fat, the gut microbiota and obesity *202P* 11:15 **R.L. Young**: Dysregulation of intestinal glucose sensing and transport in critical illness *203P* 11:40 **P.P. Bertrand**: Iron sensing by the intestine: A new model for iron-induced changes to GI motility *204P* 12:05 **C. Feinle-Bisset**: Nutrient sensing in the human gastrointestinal lumen - role in appetite regulation and implications for obesity *205P*	**Skeletal muscle in health and disease** Chair: Gordon Lynch 10:30 **H. Westerblad**: Mitochondrial myopathies *206P* 11:00 **E. Hardeman**: Insights into and therapies for nemaline myopathy *207P* 11:30 **K.T. Murphy**: Tackling muscle wasting in cancer *208P* 12:00 **G. Ravenscroft**: Uncovering the genetics of neuromuscular foetal akinesias using next generation sequencing *209P*
Developments in auditory and vestibular physiology Chair: Ramesh Rajan 14:00 **A.W. Gummer**: Nanomechanical mechanisms of cochlear amplification *210P* 14:20 **G.D. Housley**: Neurohumoral mechanisms for regulating sound transduction *211P* 14:40 **R.B. Patuzzi**: Spreadsheet analysis of ion transport in epithelia *212P* 14:55 **P. J. Blamey**: Factors affecting clinical outcomes in adult patients with cochlear implants *213P* 15:15 **A.M. Brichta**: The other part of the ear - a 'balanced' view *214P* 15:35 **I.S. Curthoys**: The sensitive response of irregular otolithic vestibular afferents to bone conducted vibration and air conducted sound underpins fast, simple, safe clinical testing of otolithic function *215P*	**Lunch - AuPS AGM _** **Ion Channels as drug targets** Chair: Trevor Lewis 14:00 **D. Julius**: Exploiting toxins to probe pain pathways *216P* 14:40 **G.F. King**: Spider-venom peptides that target the human $Na_v1.7$ channel: potential analgesics for the treatment of chronic pain *217P* 15:00 **R.S. Norton**: Conotoxins targeting voltage-gated sodium channels: harnessing nature's analgesics *218P* 15:20 **M. Chebib**: Modulation of Cys-loop receptors to address CNS disorders *219P* 15:40 **A. Keramidas**: Correlating functional models of channel activation with subunit specific $GABA_A$ receptors *220P*	**Free Communications - Muscle Diseases** Chair: Stewart Head 14:00 **J.L. Chen**: Targeting activin to counteract muscle wasting and cachexia *221P* 14:15 **B.P. Frankish**: Calpain-3 deficiency results in the perturbation of specific Ca^{2+}-handling proteins in skeletal muscle of mice *222P* 14:30 **T.R. Cully**: Adeno-associated virus directed expression of Orai1 to examine store operated calcium entry in wild-type and dystrophic skeletal muscle *223P* 14:45 **T.D. Colgan**: Combinatorial gene therapy using AAV technology to treat Duchenne muscular dystrophy *224P* 15:00 **T. Kennedy**: Altered expression of heat shock proteins in Duchenne muscular dystrophy *225P* 15:15 **A. Cheng**: Time-course of decline in the size of neuromuscular synaptic contacts with sedentary aging in mice *226P* 15:30 **P.W. Sheard**: A new view of fibre type transformations in elderly skeletal muscles *227P* 15:45 **M. Morsch**: Patient autoantibodies reveal the role of muscle specific kinase in maintaining the mature neuromuscular junction *228P* 16:00 **K. Swiderski**: Endogenous phosphorylation of the dystrophin protein modulates protein function *229P*
16:30 Afternoon tea and Drinks - Closing Reception and Awards		

Posters

Presenting authors will be with their posters according to the poster board number. Odd posters: Monday; Even posters: Tuesday.

1 **V. Zaitsev**: Anabolic effect of formoterol administration on skeletal muscle is not impaired by co-treatment with the β1-adrenoceptor antagonist CGP-20712A *41P*

2 **C.R. Lamboley**: Endogenous and maximal sarcoplasmic reticulum calcium content in human *vastus lateralis* muscle fibres is decreased with ageing *42P*

3 **H. Willemse**: Human aging and expression of proteins interacting with the ryanodine receptor in skeletal muscle *43P*

4 **C. van der Poel**: The pathogenesis of inflammation in knee osteoarthritis and its effect on muscle function *44P*

5 **J.P. Mollica**: Calpastatin and m-calpain have different cellular localizations in rat skeletal muscle: implications for function *45P*

6 **N.Y. Marden**: Online feedback assessments in introductory physiology courses: effects on students' learning experience and outcomes *46P*

7 **R.G. Barker**: Taurine improves *tibialis anterior* force production and muscle architecture in the 28 day old *mdx* mouse model of Duchenne muscular dystrophy *47P*

8 **S. Chan**: SR pump function and fatigue characteristics of fast fibres from α-actinin-3-deficient speed gene knockout mice *48P*

9 **E.J. Stephenson**: The oxidative profile of white adipose tissue is not related to intrinsic exercise capacity or whole-body metabolic health *49P*

10 **C.A. Lucas**: Contraction induces a cyclic promoter hypomethylation in mouse skeletal muscle *50P*

11 **H. Xu**: The effect of amylase treatment on the detection of glycogenin, glycogen debranching enzyme and glycogen phosphorylase proteins in rat fast-twitch skeletal muscle *51P*

12 **V. Nylander**: The role of epigenetic modifications in the long term memory of cancer treatment *52P*

13 **C.R. Brandner**: Acute neural responses to blood flow restriction strength exercise *53P*

14 **A.J. Craig**: A photothrombosis-induced ischaemic infarct model for study of hind brain stroke *54P*

15 **S. El-Ajouz**: Understanding the molecular gates of KirBac3.1 *55P*

16 **T. Guo**: Influence of cell morphology in computational models of on and off retinal ganglion cells *56P*

17 **M.H. Rashid**: Binding site of Scorpion toxin HsTx1 to the potassium channel Kv1.1 and Kv1.3 from Molecular Dynamics simulations *57P*

18 **S. Talwar**: Identification and characterization of novel synthetic variabilin analogues targeting the glycine receptor Cl^- channels *58P*

19 **S. Mahdavi**: Computational investigation of μ-conotoxin binding to voltage gated sodium channels *59P*

20 **D. Robertson**: Olivocochlear reflex strength and the auditory attentional filter *60P*

21 **P.H. Barry**: Further measurements of liquid junction potentials, and their implications, using a refined freshly-cut 3M KCl reference salt-bridge methodology *61P*

22 **A. Bhaskaracharya**: Probenecid, a gout treatment, blocks the human P2X7 receptor *62P*

23 **J.R. Lawson**: Agonist selectivity of neuronal glycine receptors *63P*

24 **K.A. Jenkin**: Cannabinoid receptor 2 expression in proximal tubule cells exposed to elevated glucose and albumin *64P*

25 **H. Cuny**: Identifying key amino acid residues for α-conotoxin AuIB inhibition of $\alpha 3\beta 4$ nicotinic acetylcholine receptors *65P*

26 **H.J. Lee**: Pharmacological characterization of individual subtypes of $\alpha 4\beta 3\delta$ $GABA_A$ receptor, include the novel description of $\beta 3\delta$ $GABA_A$ receptor subtype *66P*

27 **T.K.H. Nguyen**: Melittin-membrane interaction follows lipid-specific multi-step mechanism *67P*

28 **C.L. Dixon**: Using artificial synapses to investigate $GABA_A$ receptor kinetics *68P*

29 **H.-S. Tae**: A salt-bridge network determines agonist size selectivity in ρ1 $GABA_C$ receptor *69P*

30 **T.M. Lewis**: Mixed antagonistic effects of the ginkgolides at recombinant human ρ1 $GABA_C$ receptors *70P*

31 **L.W. Wong**: Are the putative N-terminal α-helix and preceding residues important in $GABA_{A/C}$ receptor function? *71P*

32 **K.L. Hamilton**: Membrane trafficking and localization, residence time and degradation of KCa3.1 in a polarized epithelium *72P*

33 **J.E. Hare**: Structural insight into the CLIC1 integral membrane structure by fluorescence resonance energy transfer and electron microscopy *74P*

34 **A. Bode**: Effects of new human startle disease mutations on glycine receptor function and structure *75P*

35 **T. Stockner**: The ATP-bound state of P-glycoprotein is closed towards the cell exterior *76P*

36 **Y. Kim**: TRPC3c (high activity) transient receptor potential channel expression in the mouse brain *77P*

37 **E.L. Daniel**: Determining a link between XLID and missense mutations in Chloride Intracellular Ion Channel Protein 2 (CLIC2): a biophysical approach *78P*

38 **L. Han**: Differential movement of M4 transmembrane segments during activation of α1 and α3 glycine receptors *79P*

39 **C. Boiteux**: Insights into voltage gated sodium channel NavAb function from multi-microsecond molecular dynamics simulations *80P*

40 **L.J. Munro**: Modulation of GlyT2 by endogenous lipid based compounds occurs through interactions with EL3 *81P*

41 **G. Heinzelmann**: Molecular Dynamics simulations on a bacterial homolog of the human glutamate transporters *82P*

42 **A.P. Tosolini**: Characterization of the muscle-motor neuron topography of the mouse forelimb *83P*

43 **N. Subramanian**: The binding of morphine and nicardipine to the multidrug transporter P-glycoprotein *84P*

44 **R. Mohan**: Characterization of the muscle-motor neuron topography of the mouse hindlimb *85P*

45 **D. Robertson**: Timecourse of development of hyperactivity in the auditory midbrain after cochlear trauma *86P*

46 **J.L. Pinyon**: Evaluation of auditory nerve fibre recruitment by eABR *via* cochlear implant stimulation in the guinea-pig model *87P*

47 **A. Al Abed**: Electrical restitution properties of rabbit atrial tissue *88P*

48 **G. Ivanov**: Acute effects of insulin on the endothelium-dependent dilation of rat cremaster muscle arteries *89P*

49 **M.S. Imtiaz**: Three-dimensional modeling of Ca^{2+} dynamics in single cardiac cells *90P*

50 **J.M. Power**: Calcium waves alter dendritic spine morphology in basolateral amygdala projection neurons *91P*

51 **S.A. Mann**: The importance of cardiac ion channels on the electrocardiogram - partial least squares regression as a new tool in computational biology *92P*

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