

# GENETICS SOCIETY OF AUSTRALASIA

## ADELAIDE 2008

### PROGRAM

Monday 7 July 2008  
19.00 - 21.00

Mixer

Foyer, South Australian Museum

Tuesday 8 July 2008

8.45 Opening, Napier Building, Lecture Theatre 1.02

Professor James McWha Vice Chancellor and President, The University of Adelaide

9.00 Plenary Lecture, Napier Building, Lecture Theatre 1.02

Chairperson: David Adelson

Frederik Nijhout The Developmental Regulation and Evolution of Body size: Studies with *Manduca sexta*  
*Department of Biology, Duke University, USA* [Abstract 1](#)

10.00 – 10.30 Coffee break Lower Napier Building, Foyer

Symposium 1

Evolutionary Genetics,  
Lower Napier Building LG29

Chairperson: Jeremy Timmis

10.30 David Penny, Lesley Collins; Sylvia Chen.  
*The ancestral eukaryote inferred from genomes*  
[Abstract 2](#)

11.00 Ken Wolfe. *Gene loss from a chloroplast mutation hotspot* [Abstract 3](#)

11.30 Anna E. Sheppard and Jeremy N. Timmis.  
*Plastid DNA instability in the nuclear genome*  
[Abstract 4](#)

11.45 Andrew H. Lloyd and Jeremy N. Timmis.  
*Functional gene transfer from the chloroplast to the nucleus in tobacco* [Abstract 5](#)

12.00 Deborah Shearman, Jennifer Morrow, Stuart Gilchrist, Kathie Raphael and Marianne Frommer.  
*Mating isolation in three species of tephritid fruit fly*  
[Abstract 6](#)

Concurrent Session 1:

Developmental Genetics and Cytogenetics  
Lower Napier Building LG28

Chairperson: Stephen Donnellan

10.30 Janine E. Deakin, Edda Koina, Margaret L. Delbridge, Paul Waters, Amir Mohammadi, Jennifer A. Marshall Graves. *Efficient generation of a cytogenetic map of the tamar wallaby genome*  
[Abstract 7](#)

10.45 Ubon Tangkawanit, Chaliow Kuvangkadilok, Visut Baimai and Peter H Adler. *Cytogenetics of the *Simulium tuberosum* group (Diptera: Simuliidae) in Thailand* [Abstract 8](#)

11.00 Tamar Sztal, Henry Chung, Philip Batterham, Phillip J. Daborn. *The role of Cytochrome P0 genes in hormone synthesis and reproduction* [Abstract 9](#)

11.15 Warwick Grant, Susan Stasiuk and Matthew Crook. *Ecological genetics of *Parastrongyloides trichisuri* and the evolution of parasitism*  
[Abstract 10](#)

11.30 Balasubramanian Sureshkumar, Marco Todesco, Sridevi Sureshkumar, Janne Lempe and Detlef Weigel. *From QTL to gene: Exploiting natural variation in *Arabidopsis thaliana* to understand genetic basis of complex traits* [Abstract 11](#)

12.30 – 14.00 LUNCH (see page 7 for recommendations)

GSAA Committee Meeting during the lunch break (bring lunch to Lower Napier Building LG28)

**Tuesday 8 July 2008**

**Symposium 2:**

**The Genetics of Development**  
**Lower Napier Building LG29**

Chairperson: Robert Richards

14.00 Owen WJ Prall, Mark J Solloway, Milena Furtado, Christine Biben, Daniel Schaff, Mary K Menon, Richard P Harvey. *Overlapping roles for Bmp/Smad signalling in heart development* **Abstract 12**

14.30 Sally L. Dunwoodie. *Notch Signalling, somitogenesis and abnormal vertebral segmentation* **Abstract 13**

15.00 Ben Tucker. *Fragile X Syndrome: genetic modelling and therapeutic leads in zebrafish* **Abstract 14**

15.15 Martin Lewis, Thomas Klaric, Colleen Bindloss, Muray Whitelaw, Michael Lardelli and Simon Koblar. *The Developmental Role of NPAS* **Abstract 15**

15.30 Stephen Gregory, Saman Ebrahimi, Joanne Milverton and Robert Saint. *Molecular mechanisms in cell division* **Abstract 16**

**Concurrent Session 2:**

**Population and Evolutionary Genetics**  
**Lower Napier Building LG28**

Chairperson: Miguel de Barros Lopes

14.00 Hilary C. Miller, Jennifer A. Moore, Nicola J. Nelson, Charles H. Daugherty. *Do MHC genes influence mate choice in reptiles? A case study on tuatara (*Sphenodon punctatus*)* **Abstract 17**

14.15 Yuanyuan Cheng, Matthew Wakefield, Hannah Siddle, Penny C. Coggill, Cathy Herbert, Stephan Beck, Katherine Belov and Mark D. B. Eldridge. *Development of MHC-linked microsatellite markers in the tammar wallaby (*Macropus eugenii*)* **Abstract 18**

14.30 Jackie T. Chan. *Genetic estimates of dispersal and the implications for conservation management of grey-headed flying fox* **Abstract 19**

14.45 Sarah C.E. Bray, Jeremy Austin, Beth Shapiro, Jacobo Weinstock, Ian Barnes, Leopoldo Soibelzon, Alan Cooper. *Ancient DNA analysis of the extinct Tremarctine bears* **Abstract 20**

15.00 Gillian Gibb, Julia Goldberg, Steve Trewick, Ralph Powlesland, David Penny. *The Multiscale Nature of Phylogeny: A case study using the New Zealand Pigeon (*Kereru*)* **Abstract 21**

15.15 JY Yao, XC Jia, YC Crozier, YZ Chen, RH Crozier, JM Cook. *Self-pollination in an Australian fig species* **Abstract 22**

15.30 Beth E. Schlotfeldt, Terry Bertozzi, Steve Donnellan and Sonia Kleindorfer. *Adaptive divergence and gene flow in island and mainland populations of the Superb Fairy-wren (*Malurus cyaneus*) in South Australia* **Abstract 23**

15.45 Kym Ottewell, Andrew Lowe, Doug Bickerton and Phil Ainsley. *The genetic consequences of rarity: Case studies of South Australian endangered plant species and their common congeners* **Abstract 24**

**16.00 Coffee break, Lower Napier Building, Foyer**

**16.05 Genetics Society of AustralAsia Annual General Meeting, Lower Napier Building LG28,  
All members are encouraged to attend**

**17.00-19.00 POSTERS AND COCKTAILS**

**Eclipse Room, Students' Union Building**

**Wednesday 9 July 2008**

**9.00 Plenary Lecture, Lower Napier Building, Lecture Theatre 1.02**

Chairperson: Karen Burke da Silva

Patricia J. Pukkila, Martha S. Arnold, David H. Kiel.

*Catalyzing Changes in Undergraduate Science Education* **Abstract 26**

**10.00 – 10.30 Coffee break, Lower Napier Building, Foyer**

**Symposium 3**

**Teaching Genetics and Evolution**  
**Lower Napier Building LG29**

Chairperson: David Catcheside

10.30 Brett A. Lidbury and Felicia Z. Zhang. *Language-Centred Pedagogy and the Impact on Learning in Undergraduate Genetics and Molecular Biology Units* **Abstract 27**

11.00 Karen Burke da Silva. *Teaching Evolution as core in First Year Biology* **Abstract 28**

11.30 John Sved. *The Hands On Genetics and other genetics and evolution computer teaching programs* **Abstract 29**

**Concurrent Symposium 3**

**Molecular Systematics and Biogeography**  
**Lower Napier Building LG28**

Chairperson: Alan Cooper

10.30 Mark J. Sistrom. *Systematics and evolutionary history of the most successful Australian geckos – Gehyra* **Abstract 30**

10.45 Nic Rawlence, Trevor Worthy, Jeremy Austin, Alan Cooper. *Phylogeography of the extinct New Zealand moa *Pachyornis*: ancient DNA versus morphology* **Abstract 31**

11.00 Luke Price, Donnellan, S. and Mahony, M. *Patterns of diversification in northern Australian frogs* **Abstract 32**

11.15 Georgina M. Cooke, Ning L. Chao, Luciano B. Beheregaray. *Water 'Colour' and Fish evolution: A Comparative Phylogeographic Study of Amazonian Fishes across an Ecological Gradient* **Abstract 33**

11.30 Philippa Griffin. *Identifying distinct lineages among sympatric Australian alpine *Poa* species to predict evolutionary responses to climate change* **Abstract 34**

11.45 Jaro Guzinski. *Population genetics analysis reveals substructuring within a population of an Australian reptile tick *Bothriocroton hydrosauri** **Abstract 35**

12.00 Robert A. B. Mason, Karen-Ann Gray, Rebecca N. Johnson, Catherine Price, Walter E. Boles. *Conservation genetics of the Bush Stone-curlew (*Burhinus grallarius*)* **Abstract 36**

12.15 Leo Joseph, Gaynor Dolman, Stephen Donnellan, Kathleen Saint, Mathew Berg and Andrew Bennett. *Where and When Does A Ring Start and End? Testing the Ring Species Hypothesis in a Species Complex of Australian Parrots* **Abstract 37**

12.30 David Alquezar, Robert D. Cooper, and Nigel W. Beebe. *Genomic analysis of the multicopied rDNA ITS in the mosquito *Anopheles longirostris* Burg (Diptera: Culicidae) and parallel assessment of the mtDNA cytochrome oxidase reveals eight cryptic species in Papua New Guinea* **Abstract 38**

**12.45 – 14.00 LUNCH**

**Wednesday 9 July 2008**

**Symposium 4**

**Rates of Evolution**

**Lower Napier Building LG29**

Chairperson: Jack da Silva

14.00 Allen Rodrigo and Peter Tsai. *Artificial causes of substitution rate discrepancies* **Abstract 39**

14.30 Matthew J. Phillips. *Branch-length estimation bias misleads molecular dating* **Abstract 40**

15.00 Simon Y. W. Ho and Phillip Endicott. *Recalibrating the time-scale of human evolution using mitochondrial DNA* **Abstract 41**

15.30 Alan Cooper, Jack Da Silva. *The evolutionary rates curve: How accurate are molecular date estimates?* **Abstract 42**

**Concurrent Session 4**

**Comparative genomics**

**Lower Napier Building LG28**

Chairperson: Tasman Daish

14.00 Renfu Shao and Stephen C. Barker. *The head louse, *Pediculus capitis*, has an extraordinary mitochondrial genome* **Abstract 43**

14.15 Tatiana Vassilieva, Nagesh Chakka, Jill E. Gready. *Evolution of expression and function of the prion-protein family genes, PRNP and PRND* **Abstract 44**

14.30 Vidushi S. Patel, Steven J. B. Cooper, Janine E. Deakin, Bob Fulton, Tina Graves, Wesley C. Warren, Richard K. Wilson, Jennifer A. M. Graves. *A new model for the evolution of the globin gene clusters in amniotes* **Abstract 45**

14.45 Hardip Patel, Frickey, T., Waters, P., Delbridge, M., and Graves, J.A.M. *Comparative analysis of protein coding genes: Rearrangements and gene gain or loss* **Abstract 46**

15.00 Hannah S. Bender, Elizabeth P. Murchison, Margaret A. Strong, Daniel A. McMillan, Tariq Ezaz, Carol W. Greider, Anne-Maree Pearse, Gregory J. Hannon and Jennifer A. Marshall Graves. *Telomere length polymorphism in wild Tasmanian devils* **Abstract 47**

15.15 Kioumars Ghamkhar, Megan Ryan, Phil Nichols, Richard Snowball, Rudi Appels. *Genetics and ecogeographical studies in subclover (*Trifolium subterraneum*)* **Abstract 48**

15.30 Katherine Belov, Hannah Siddle, Jolanta Marzec, Claire Sanderson. *The role of the Major Histocompatibility Complex in Devil Facial Tumour Disease* **Abstract 49**

15.45 Emily Remnant, Phil Batterham and Phillip Daborn. *The expression, evolution and role of ligand-gated chloride channels in insecticide resistance* **Abstract 50**

**16.00 – 17.00 Coffee break, Lower Napier Building, Foyer**

**17.00 The Sir Ronald Fisher Lecture, Napier Building, Lecture Theatre 1.02**

Chairperson: Bob Hill, Executive Dean, Faculty of Sciences, The University of Adelaide

Ken Wolfe. *The impact of ancient polyploidisations on eukaryotic genome evolution* **Abstract 51**

**Refreshments afterwards in the Foyer, Lower Napier Building**

**19.00 – 24.00 Conference Banquet**

**Pacific Cultures Gallery South Australian Museum**

9.00 **Plenary Lecture, Napier Building, Lecture Theatre 1.02**

Chairperson: Frank Grützner

Jennifer A. Marshall Graves. *Weird animal genomes and sex* **Abstract 52**

10.00 – 10.30 **Coffee break, Lower Napier Building, Foyer**

**Symposium 5**

**Comparative Genomics**

**Lower Napier Building LG29**

Chairperson: Stephen Gregory

10.30 Eldon E. Ball, David J. Miller. *Lower metazoan genomes-a window on genome evolution* **Abstract 53**

11.00 Matthew Bellgard. *An integrated approach to undertaking diverse studies in comparative genomics* **Abstract 54**

11.30 Frank Grützner and Enkhjargal Tsend-Ayush. *Large-insert genomic clones – a new tool to study genome organisation in sperm* **Abstract 55**

11.45 Janine E. Deakin, Timothy A. Hore, Edda Koina, Jennifer A. Marshall Graves. *The status of dosage compensation in the multiple X chromosomes of the platypus* **Abstract 56**

12.00 Camilla M. Whittington, Anthony T. Papenfuss, Katherine Belov. *From immunome to venom: Convergent evolution of platypus and reptile venom genes* **Abstract 57**

12.15 Henry Ye and Elizabeth A. McGraw. *The evolution of resistance to bacterial infection in *Drosophila melanogaster** **Abstract 58**

**Concurrent Session 5**

**Molecular Genetics**

**Lower Napier Building LG28**

Chairperson: Louise O'Keefe

10.30 Michael Lardelli. *Truncated Presenilin peptides with potent dominant negative activity* **Abstract 59**

10.45 Kamlangdee, N, Lockington, RA, and Joan Kelly. *Targets of the CreB regulatory deubiquitinating enzyme in *A. nidulans** **Abstract 60**

11.00 Tom Harrop, Philip Batterham and Phillip J. Daborn. *Assessment of Cytochrome P0 function in *Drosophila melanogaster* by RNA interference of the P0 redox partners CPR and Dare* **Abstract 61**

11.15 Jeremy R. Shearman and Alan N. Wilton. *Using the canine SNP array to identify disease genes* **Abstract 62**

11.30 Rugang Tian, Wayne Pitchford, Cynthia D.K. Bottema. *Molecular genetics of beef fat colour* **Abstract 63**

11.45 Bree Buszard, Tony Tiganis, and Coral Warr. *The *Drosophila* Protein Tyrosine Phosphatase dPTP61F regulates insulin signalling and growth* **Abstract 64**

12.00 Tasman Daish, Frank Grützner and Enkhjargal Tsend-Ayush. *Meiotic sex chromosome inactivation in monotremes* **Abstract 64a**

12.30 – 14.00 **LUNCH**

**Thursday 10 July 2008**

**Symposium 6**

**Bioinformatics,**

**Lower Napier Building LG29**

Chairperson: Martin Lewis

14.00 Brian. P. Dalrymple. *Identification and annotation of repeats in the bovine genome* **Abstract 65**

14.30 David L. Adelson, Joy M Raison, Robert C Edgar. *Building the sheep genome using comparative genomics and new generation sequencing technologies* **Abstract 66**

15.00 Gavin Huttley and Von Bing Yap. *Context and Codons: standard models are biased by sequence composition* **Abstract 67**

15.15 Lisa M. J. Bardsley, Wayn Wong, Charles Robin. *Pseudogenes in Drosophila* **Abstract 68**

15.30 William B Sherwin, Jurgis Sapjanskas & Dhriti Pandya. *Linkage disequilibrium in natural populations: information statistics provide a powerful test* **Abstract 69**

**16.00 -16.30 Coffee break**

**16.30 M. J. D. White Address, Napier Building, Lecture Theatre 1.02**

Chairperson: Jeremy Timmis

Margaret E. Katz. *Food, sex, drugs and death in fungi: identification of genes involved in nutrient sensing and programmed cell death* **Abstract 70**

**17.30 – 18.00 Awards and Closing, Napier Building, Lecture Theatre 1.02**

## Tuesday 8 July 2008, Eclipse Room, Union Building

### 17.00 – 19.00 POSTERS AND COCKTAILS

#### LIST OF POSTERS (number indicates display board position)

- 1) Ali, Shahid, Phill Batterham and Trent Perry. *The role of nicotinic acetylcholine receptors and their regulation in spinosad resistance*
- 2) Arya, Piyush and Priya Chatterjee. *Proteomics in translational cancer research*
- 3) Chan, Jackie T., Tom J. Dixon, William B. Sherwin, Iain M. Suthers, and Matthew D. Taylor. *Establishing a genetic basis for the responsible stock enhancement of the eastern king prawns (*Penaeus Melicertus plebejus*)*
- 4) Chang, Leiyao, Wayne Pitchford and Cynthia Bottema. *Locating and characterising genes affecting beef tenderness*
- 5) Chatterjee, Priya. *Gene Expression Data Analysis and Modeling*
- 6) Chong, Josephine YT, Chandramaya Siska Damayanti, Stephen Kolomyjec, Tom Grant, Jaime Gongora and Chris Moran. *Genetic population studies of platypus (*Ornithorhynchus anatinus*) in South-Eastern New South Wales*
- 7) Daish, Tasman, Frank Grützner and Enkhjargal Tsend-Ayush. *Meiotic sex chromosome inactivation in monotremes (now moved oral presentation, Abstract 64a) there will be no poster*
- 8) Ezaz, Tariq, Alexander E. Quinn, Stephen D. Sarre, Arthur Georges, Denis O'Meally, Jennifer A. Marshall Graves. *ZooFISH reveals homologous sex chromosomes among GSD and TSD Australian dragons*
- 9) Fellfort, Geesa, Embel du Ped, and Avril F. Hoques. *In the beginning was the Word: Canonical language patterns in biomolecules*
- 10) Gwilliam, Jessica, Adam Stow, Robert Harcourt. *Conservation genetics of commercially exploited sharks*
- 11) Harvey, Susan. *Phylogeography of the Grassland Melomys (*Melomys burtoni*)*
- 12) Honda, Takahiro, Narelle E. Tunstall and Coral G. Warr. *Genetic screens to identify olfactory genes in *Drosophila**
- 13) Hunter, A, Jin, B, and Kelly, JM. *Genetic modification of *Aspergillus oryzae* for treatment of winery wastes.*
- 14) Jaratlerdsiri, Weerachai, Chandramaya Siska Damayanti, Lee Miles, Lorna Melville, Chris Moran, Sally Isberg and Jaime Gongora. *Three groups of Endogenous Retroviruses found in Crocodilians*
- 15) Jitklang, Sanae, Chaliow Kuvangkadilok, Visut Baimai, Hiroyuki Takaoka, and Peter H. Adler. *Cytogenetics and Morphotaxonomy of the *Simulium (Gomphostilbia) ceylonicum* species group (Diptera: Simuliidae) in Thailand.*
- 16) Kilinc, Aydin and David R. Smyth. *Evolution of an enhancer region that regulates PETAL LOSS expression in the perianth of the *Arabidopsis* flower.*
- 17) Klarić, Thomas, Martin Lewis, Murray Whitelaw and Simon Koblar. *The role of Nxf in neurogenesis*
- 18) Lawlor, K.T. , C.L. van Eyk, S. Samaraweera, L.V. O'Keefe, C.J. McLeod, S. Dayan, and R.I. Richards. *Pathways of pathogenesis in dominant expanded repeat diseases*

- 19) Lim, Hiendleder, Fitzsimmons, Grützner. *DNA replication analysis of polyploid bovine trophoblast giant cells*
- 20) Cintia M. Martinez-Garduno, Yvonne M. Parsons. *Selection experiments under laboratory conditions to ZnCl<sub>2</sub> in Chironomus tepperi*
- 21) Mitchell, Judith, Phil Daborn, Phil Batterham, Trent Perry. *Nicotinic Acetylcholine Receptors and their Roles in Insecticide Resistance*
- 22) Mohammadi, Amir, Margaret Delbridge, Janine E. Deakin, Paul D. Waters, and Jennifer A. M. Graves. *Characterization of an MHC-linked olfactory receptor gene cluster in Tammar wallaby*
- 23) Murtagh, Veronica J., Paul D. Waters, Jennifer A. Marshall Graves. *Revealing the wallaby Y chromosome*
- 24) Myers, Steven. *Comparing Morphology and Gene flow in New Holland Honeyeaters at a Cross-regional scale*
- 25) Navdeep, Bhatti. *Chromosome and genome size evolution in the genus Schoenus*
- 26) Novianti, Irida, Wayne Pitchford, and Cynthia Bottema. *Molecular genetics of cattle body conformation*
- 27) O'Keefe, Louise, Alex Colella, Sonia Dayan, Qingwen Chen and Robert Richards. *Common fragile site-associated genes in Drosophila*
- 28) Pornpimol P-Rattanatrai, Chandramaya Siska Damayanti, Chris Moran, Jaime Gongora. *Emergence of MHC non-classical class Ib genes in pigs and peccaries*
- 29) Potter, Sally David Taggart, Steve Cooper and Mark Eldridge. *Phylogeography and population genetics of rock-wallabies in the Kimberley, WA*
- 30) Stark, Alan E. *Mating and offspring frequencies under partial outcrossing in a structured population*
- 31) Swan, Amelia, Chandramaya Siska Damayanti, Stephen Kolomyjec, Tom Grant, Chris Moran and Jaime Gongora. *Mitochondrial DNA analysis of Platypus from New South Wales*
- 32) Tangkawanit, Ubon, Chaliow Kuvangkadilok, Visut Baimai and Peter H Adler. *Cytogenetics of the Simulium tuberosum group (Diptera: Simuliidae) in Thailand.*
- 33) Zarnegar, Armita, Mohammed M Islam, Peter Vamplew, Andrew Stranieri. *A hybrid evolutionary algorithm for nucleosome positioning*
- 34) Zulkifli, Nadiatur Akmar, Madan Naik, Wayne Pitchford and Cynthia Bottema. *Molecular Genetics of Mitochondrial Function and Net Feed Efficiency in Cattle*
- 35) William G. Alexander, Namboori B. Raju, Hua Xiao, Thomas M. Hammond, Tony D. Perdue, Edward G Barry, Robert L. Metzenberg, Jason E. Stajich, Patricia J. Pukkila, and Patrick K.T. Shiu. *Relationships between chromosome pairing and meiotic silencing of unpaired DNA (MSUD) in Neurospora crassa*
- 36) Naomi Ratcliff, Chandramaya Siska Damayanti, Chris Moran, Sally Isberg, Jaime Gongora. *Mitochondrial control region analyses of the Saltwater Crocodile from the Northern Territory.*
- 37) Elizabeth P. Murchison<sup>1\*</sup>, Pouya Kheradpour<sup>2</sup>, Ravi Sachidanandam<sup>1</sup>, Carly Smith<sup>1</sup>, Zhenyu Xuan<sup>1</sup>, Frank Grützner<sup>4</sup>, Alexander Stark<sup>2,3</sup>, and Gregory J. Hannon<sup>1</sup> *MiRNAs and piRNAs in platypus and echidna.*