



## AUSTRALIAN SOCIETY FOR BIOPHYSICS

26th Annual Conference

Melbourne

November 29th to 30th, 2002

### Programme summary

#### Friday 29<sup>th</sup> November

8:30-9:20 am Registration in foyer of Biochemistry Department and Coffee

9:20-9:30 am Opening (Conference Convenor – Paul Gooley)

#### **Session 1 Biomolecular Structure and Dynamics (Chair: Terry Mulhern)**

9:30 - 10:15 Art Palmer (Dept. Biochem. and Mol. Biophys., Columbia University)  
*NMR Methods for Characterizing Protein Motions and Folding*

10:15 - 10:40 Mark Hinds (Walter and Eliza Hall Institute of Medical Research)  
*The Structure of Bcl-w, a Pro-survival Bcl-2 Family Member, Reveals an Unexpected Role for the C-terminal Hydrophobic Residues in Modulating Biological Activity*

10:40 – 11:00 Louise Brown (School of Physics, UNSW)  
*Structure of the Inhibitory Region of Troponin I in the ternary complex by Site-Directed Spin Labeling EPR Spectroscopy*

#### **Coffee**

11:00 - 11:30

#### **Session 2 Fluorescence (Chair: Ken Ghiggino)**

11:30 - 12:00 Andrew Clayton (Ludwig Institute for Cancer Research)  
*Measurement of Protein-Protein Interactions and Dynamics in Live Cells Using Frequency-Domain Dynamic Depolarization Imaging Microscopy*

12:00 – 12:20 Deepak Chhabra (Institute for Biomedical Research, University of Sydney)  
*Intracellular Interactions of Actin*

12:20 – 12:40 Michelle Gee (School of Chemistry, University of Melbourne)  
*Partial Denaturation of Silica-Adsorbed Bovine Serum Albumin as Determined by Time-Resolved Evanescent Wave-Induced Fluorescence Spectroscopy*

12:40 - 1:00 Sharon Finger (Institute for Biomedical Research, University of Sydney)  
*Evaluation of Heavy Metal Toxicity in a Rapid Fluorescent DNA Damage Determination Assay*

**1:00 – 2:00 Lunch (provided) and Poster Preview**

- Session 3 Protein and Peptide Structure (Chair: Mibel Aguilar)**
- 2:00 – 2:30 Steve Bottomley (Dept. of Biochem. and Mol. Biol., Monash University)  
*Biophysical insights into the folding and misfolding of  $\alpha_1$ -Antitrypsin*
- 2:30 – 2:50 David Keizer (Walter and Eliza Hall Institute of Medical Research)  
*Interactions of Phage-Display Peptides and the Malarial Merozoite Surface Protein, Apical Membrane Antigen 1*
- 2:50 – 3:10 Jacqui Mathews (School of Mol. and Microbial Biosciences, University of Sydney)  
*Probing Transcriptional Complexes Involved in Development and Disease*
- 3:10 – 3:30 Paul Pallaghy (Dept. of Biochemistry, University of Melbourne)  
*Biased Collapse and Substructure Accessibility Imply the Kinetic Hypothesis of Protein Folding*
- 3:30 – 3:50 Philip Kuchel (School of Mol. and Microbial Biosciences, University of Sydney)  
*NMR and the platypus: protein-structural surprises from an animal of surprises*
- 4:00 - 4:30 Coffee**
- Session 4 Posters in Biochemistry Department**
- 4:30 - 6.30
- 6.30 – 7:30 Mixer**

Saturday 30<sup>th</sup> November

8:45 – 9:30 Robertson Lecture

**Session 5 Membranes and Ion Channels (Chair: Jacqui Gulbis)**

- 9:30 – 9:55 Jamie Vandenberg (Victor Chang Cardiac Research Institute)  
*HERG  $K^+$  channels: A new paradigm for ion channel gating*
- 9:55 – 10:20 Paul Curmi (Centre for Immunology, St Vincent's Hospital and UNSW)  
*Crystal Structure of the Soluble Form of the intracellular Chloride Ion Channel CLIC1 (NCC27)*
- 10:20 – 10:40 Boris Martinac (Dept. of Pharmacology, University of Western Australia)  
*Gating of Mechanosensitive Channels by Bilayer Deformation Forces: Open Channel Structure of MscL*
- 10:40 - 11:00 Ron Clarke (School of Chemistry, University of Sydney)  
*Synthesis of Steady-State Patch-Clamp and Transient Stopped-Flow Kinetic Data of the  $Na^+, K^+$ -ATPase*
- 11:00-11:30am Coffee**

- Session 6                      Photosynthesis and Plant Biophysics I (Chair: Christa Critchley)**
- 11:30 – 12:00                  Ron Pace (School of Chemistry, ANU)  
*Artificial Photosynthesis*
- 12:00 – 12:20                  Reza Razeghifard (Research School of Biological Sciences, ANU)  
*The Binding of Zn-Chlorin to a Synthetic Four-Helix Bundle Peptide through Histidine Ligation*
- 12:20 – 12:40                  Sam Hay (Research School of Biological Sciences, ANU)  
*Protein Engineering of E. coli Cytochrome b562 for Chlorophyll- and Quinone-Binding*
- 12:40 - 1:00                      Sergey Shabala (School of Agricultural Science, University of Tasmania)  
*Ionic Basis of Blue Light Control of Plant Elongation*
- 1:00 – 1:50                      Lunch (provided)**
- Session 7                      Photosynthesis and Plant Biophysics II (Chair: Karin Ahrling)**
- 1:50 – 2:15                      Ben Hankamer (Institute of Molecular Bioscience, University of Qld.)  
*Three-dimensional structure of the photosystem II core dimer of higher plants determined by electron microscopy*
- 2:15 – 2:35                      Sindra Petersen (Research School of Chemistry, ANU)  
*A Comparison of Different Photosystem II Preparations from Plants and Cyanobacteria by Absorption, CD and MCD Measurements*
- 2:35 – 3:00                      Markus Rokitta (Dept. of Botany, University of Qld.)  
*Monitoring of Salt Uptake in Living Plants Using NMR Microimaging*
- 3:00 – 3:20                      Igor Pottosin (Centro Univ. de Investigaciones Biomédicas, Univ. de Colima)  
*K<sup>+</sup> Control of the Bipolar Gating in Plant Vacuolar Channel*
- 3:20 – 3:40                      Coffee**
- Session 8                      Bionanotechnology and Biomaterials (Chair: John Ramshaw)**
- 3:40 – 4:05                      Ratnesh Lal (Neuroscience Research Institute, University of California)  
*Application of Atomic Force Microscope in Nano-Biotechnology: Nanoscale Structural and Physical Analysis of Biomembranes and Macromolecules*
- 4:05 – 4:30                      Justin Cooper-White (Dept. of Chemical Engineering, University of Melbourne)  
*Soft Tissue Engineering for Organ Replacement: Design and Manufacture of 3D Biomimetic, Biodegradable Polymer Scaffolds*
- 4:30 – 5:05                      Frank Caruso (Dept. of Chemical Engineering, University of Melbourne)  
*Nanoscale Coated and Encapsulated Colloids for Biological Applications*
- 5:15-6:30 pm                      Annual General Meeting**
- 7.30 pm - late                      Conference Dinner (Masani)**