



**The Society for Free
Radical Research**
A U S T R A L A S I A

**SFRR Australasia
19th Annual Conference**



**30 November – 2 December 2010
Akaroa, New Zealand**

Programme and Abstracts

Day 1: Tuesday 30 November 2010

9.00 a.m.	Registration Desk Opens
10.50 a.m.	Welcome: Assoc Prof Mark Hampton and Dr Liz Ledgerwood
SESSION 1	CHAIR: Dr Liz Ledgerwood
11.00 a.m. – 11.40 a.m.	DR ELIZABETH VEAL Peroxiredoxins as Regulators of Stress Responses and Ageing (pg 15)
11.40 a.m. – 12.00 p.m.	DR PETER NAGY Mechanistic Investigation of the High Reactivity and Specificity of Peroxiredoxins with Peroxides (pg 16)
12.00 p.m. – 12.15 p.m.	DR REAGAN JARVIS Thermodynamics of Cellular Redox Proteins: A Perspective from Dithiol/Disulfide Exchange Circuits (pg 17)
12.15 p.m. – 12.30 p.m.	TESSA BARRETT HOSCN and Redox Signaling: Evidence for the Formation of Protein Bound Sulfenic Acid Intermediates (pg 18)
12.30 p.m. – 12.45 p.m.	DR PAUL PACE Cellular Interactions of Peroxiredoxin 2 (pg 19)
12.45 p.m. – 1.00 p.m.	DR ALEXANDER PESKIN Removal of Amino Acid, Peptide and Protein Peroxides by Reaction with Peroxiredoxin 2 and Peroxiredoxin 3 (pg 20)

LUNCH 1.00 P.M. – 2.00 P.M.



SESSION 2

2.00 p.m. – 2.40 p.m.

CHAIR: Assoc Prof Mark Hampton

ASSOC PROF HOLLY VAN REMMEM

Mitochondrial Dysfunction, Oxidative Stress and Age-Related Skeletal Muscle Atrophy (pg 21)

2.40 p.m. – 3.00 p.m.

PROF ROBIN SMITH

Measurement of Mitochondrial Hydrogen Peroxide Using a Ratiometric Mass Spectrometry Probe (pg 22)

3.00 p.m. – 3.20 p.m.

PROF JIRI NEUZIL

Mitochondrially Targeted Vitamin E Succinate Regulates Mitochondrial DNA (pg 23)

3.20 p.m. – 3.40 p.m.

PROF MICHAEL BERRIDGE

Tumour Formation by Mitochondrial-Gene Knockout Tumour Cells is Dependent on Acquisition of Functional Mitochondria from the Tumour Microenvironment: A Role for ROS on Tumourigenesis and Metastasis (pg 24)

3.40 p.m. – 4.00 p.m.

DR LIZ LEDGERWOOD

A Mutation in Cytochrome C Causes Thrombocytopenia (pg 25)

HARBOUR CRUISE 4.15 p.m. – 6.00 p.m.

BARBEQUE AND POSTER VIEWING 6.00 p.m. – 8.00 p.m.

Day 2: Wednesday 1 December

EDUCATION SESSION

8.00 a.m. – 8.45 a.m.

PROF CHRISTINE WINTERBOURN

The Biological Chemistry of Hydrogen Peroxide

SESSION 3

CHAIR: Assoc Prof Bob Anderson

9.00 a.m. – 9.20 a.m.

PROF CARL SCHIESSER

Nitrasartan, Radical Chemistry and Hypertension Diseases (pg 27)

9.20 a.m. – 9.40 a.m.

DR GUY JAMESON

The Radical Chemistry of Cysteine Dioxygenase (pg 28)

9.40 a.m. – 9.55 a.m.

ELENI SIAKKOU

Kinetic Investigations of Cysteine Dioxygenase (pg 29)

9.55 a.m. – 10.15 a.m.

DR ALFONS LAWEN

Reduction and Uptake of Non-transferrin Bound Iron by Primary Rodent Astrocytes – Two Routes of Iron Accumulation (pg 30)

10.15 a.m. – 10.30 a.m.

DHAKSHINARI HULUGALLE

The Association Between ZN Fingers and Forbidden Disulfide Motifs (pg 31)

MORNING TEA 10.30 a.m. – 11.00 a.m.

SESSION 4

CHAIR: Dr Steven Gieseg

11.00 a.m. – 11.40 a.m.

ASSOC PROF ALICIA KOWALTOWSKI

Intermittent Feeding Leads to Redox Imbalance, Insulin Receptor Modification and Impaired Glucose Metabolism (pg 32)

11.40 a.m. – 12 p.m.

ASSOC PROF MARGREET VISSERS

The Vital Role of Ascorbate as an Enzyme Co-Factor and Implications for Health and Nutrition (pg 33)

12 p.m. – 12.15 p.m.

CAROLINE KUIPER

Optimal Intracellular Ascorbate Concentrations Suppress HIF-1 α and its Transcriptional Activity Differentially in Cancer and Normal Cells (pg 34)

12.15 p.m. – 12.30 p.m.

DR BLAINE ROBERTS

Expression of G93A SOD Disproportionately Increases Copper in the Central Nervous System of SOD1 Transgenic Mice (pg 35)

12.30 p.m. – 12.45 p.m.

DR SARAH CUDDIHY

Redox Regulation of DNA Methylation (pg 36)

12.45 p.m. – 1.00 p.m.

PROF KAZIMIERZ STRZALKA

Xanthophyll Cycle – A Mechanism Protecting Plants Against Oxidative Stress (pg 37)

LUNCH 1.00p.m. – 2.00p.m.

SESSION 5

CHAIR: Prof Tony Kettle

2.00 p.m. – 2.20 p.m.

PROF DES RICHARDSON

Nitric Oxide – A Novel Mechanism of Intracellular Storage and Transport: Old Friends Revisited – GSTPI and MRP1 (pg 38)

2.20 p.m. – 2.40 p.m.

DR PAUL WITTING

The Acute Phase Protein Serum Amyloid A Induces Endothelial Dysfunction that is Inhibited by High-density Lipoprotein (pg 39)

2.40 p.m. – 3.00 p.m.

DR SHANE THOMAS

Endothelial-transcytosed Myeloperoxidase Modulates Endothelial Function by Mediating Focal Redox Signaling (pg 40)

3.00 p.m. – 3.20 p.m.

DR STEVEN GIESEG

Cytotoxicity of OXLDL: How Important is
Oxysterol Formation? (pg 41)

3.20 p.m. – 3.35 p.m.

DR ROBYN MIDWINTER

Biological Activity of Succinate in Succinylated
Probucol Relevant to the Control of Smooth
Muscle Cell Growth (pg 42)

3.35 p.m. – 3.50 p.m.

SHANE ANTAO

Neuroglobin Protects Neurons Against Hydrogen
Peroxide Insult via Increasing ATP; Dependence
on AKT Phosphorylation and the Mitochondrial
KATP Channel (pg 43)

POSTERS (Drinks and Snacks) 4.00 p.m. – 6.00 p.m.

6.00 p.m. – 6.45 p.m.

SFRR AGM

Day 3: Thursday 2 December

EDUCATION SESSION

8.00 a.m. – 8.45 a.m.

PROF TONY KETTLE

A Radical History of Oxygen

SESSION 6

CHAIR: Dr Guy Jameson

9.00 a.m. – 9.20 a.m.

PROF IAN DAWES

Cellular Redox Homeostasis and Responses to Oxidative Stress (pg 44)

9.20 a.m. – 9.40 a.m.

PROF CHRIS EASTON

Incorporation of Chlorinated Isosteres of Aliphatic Amino Acids During Cell-Free Protein Synthesis (pg 45)

9.40 a.m. – 10.00 a.m.

DR DAVID PATTISON

Fighting Radicals with Radicals: Proteins Vs Nitroxides (pg 46)

10.00 a.m. – 10.15 a.m.

ZAKLINA KOVACEVIC

The Iron-regulated Metastasis Suppressor, N-MYC Downstream Regulated Gene 1 (NDRG1), Up-regulates P21 Via P53-independent mechanisms (pg 47)

10.15 a.m. – 10.30 a.m.

YU YU

Iron Chelators of the Thiosemicarbazone Class Inhibit Ribonucleotide Reductase by Mechanisms Involving Iron Chelation and their Effect on Thiol-reducing Systems (pg 48)

MORNING TEA 10.30 a.m. – 11.00 a.m.

SESSION 7

CHAIR: Prof Mike Berridge

11.00 a.m. – 11.40 a.m.

PROF JAMES HURST

Green Fluorescent Protein as a Reporter Group for Intraphagosomal Reactions (pg 49)

11.40 a.m. – 12.00 p.m.

PROF MICHAEL DAVIES

Thiols and Selenium Residues as Major Targets for Myeloperoxidase-derived Oxidants (pg 50)

12.00 p.m. – 12.15 p.m.

DR ANNA CHAPMAN

Studying the Inhibition of Myeloperoxidase by Ceruloplasmin (pg 51)

12.15 p.m. – 12.30 p.m.

DR RUFUS TURNER

Interactions Between Urate and Myeloperoxidase in Gout (pg 52)

12.30 p.m. – 12.45 p.m.

DR JIHAN TALIB

Thiocyanate: A Potent Modulator of Myeloperoxidase-Mediated Oxidation (pg 53)

12.45 p.m. – 1.00 p.m.

TRACEY KAJER

Paracetamol (Acetaminophen) Metabolism by Myeloperoxidase: An Important Marker and Inhibitor of Damage in Inflammatory Diseases? (pg 54)

LUNCH 1.00 p.m. – 2.00 p.m.

SESSION 8

CHAIR: Dr Greg Giles

2.00 p.m. - 2.15 p.m.

ALDWIN SURYO

Selenium Residues and Seleno-proteins are Rapidly Oxidized by Singlet Oxygen and Other Photo-generated Oxidants (pg 55)

2.15 p.m. – 2.30 p.m.

ANASTASIA SHCHEPETKINA

Intracellular Antioxidant Activity of 7,8-Dihydroneopterin Protects Macrophages from Oxidised Low Density Lipoprotein (pg 56)

2.30 p.m. – 2.45 p.m.

HANADI KATOUAH

7,8 –Dihydroneopterin Protection of HMDM Cell Metabolic Function Against OXLDL-induced Damage During Atherosclerosis (pg 57)

2.45 p.m. - 3.00 p.m.

NICK MAGON

Oxidised Calprotectin as a Biomarker for Inflammatory Disease (pg 58)

3.00 p.m. – 3.15 p.m.

STEFANIE-ANN ALEXANDER

Controlling Biodeterioration of Cultural Materials Using Free Radical Based Treatments: Observations on the Effect of Endogenous and Exogenous Sources of Nitric Oxide on the Development of *Pseudomonas aeruginosa* PA01 Biofilms (pg 59)

3.15 p.m. – 3.30 p.m.

CORIN STORKEY

Selenium Containing Carbohydrate Derivatives – Kicking Heart Disease Where it Hurts (pg 60)

3.30 p.m. – 3.45 p.m.

LUWIG GROEBLER

Conjugating DFO to 3-Hydroxyadamantane-1 Carboxylic Acid Yields a Novel Iron Chelator that Inhibits Renal Tubule Epithelial Cell Dysfunction and Inflammation in a Cell Model of Rhabdomyolysis (pg 61)

3.45 p.m. – 4.00 p.m.

POLINA NEDOBOY

Correlation of Increased Levels of Plasma SCN; Thiol Oxidation and Mortality after Myocardial Infarction (pg 62)

AFTERNOON TEA 4.00 p.m. – 4.30 p.m.

SESSION 9

CHAIR: Prof Christine Winterbourn

4.30 p.m. – 4.45 p.m.

PROF TADEUSZ SARNA

The Modulatory Effects of Melanin Granules on Retinal Pigment Epithelial Cells subjected to Oxidative Stress (pg 63)

4.45 p.m. – 5.00 p.m.

DR MARTIN REES

Inhibition of Myeloperoxidase-Mediated Cardiovascular Dysfunction by Nitroxides (pg 64)

5.00 p.m. – 5.15 p.m.

PROF JAN GEBICKI

Intracellular Concentrations of GSH and Ascorbate Regulate the Levels of Oxidised Proteins (pg 65)

5.15 p.m. – 6.00 p.m.

PROF ROLAND STOCKER

SFRRRA Lifetime Achievement Award Lecture

CONFERENCE DINNER 7.00 p.m. – late