

Programme

SFRR Australasia & Japan Conference 2022

Redox Pathways in Biology & Medicine

Monday 5 December

Registration Opens 8:00 am

Welcome 8:45-9:00 am **Mihi whakatau** (Traditional Māori Welcome) **Rangihau Te Moana (Kaumātua)**
Professor Suzanne Pitama (Dean University of Otago Christchurch)
Tony Kettle (Conference Co-Chair)

Morning Session 1

Chair: Tony Kettle

Plenary Lecture 9:00-9:40 am **Vadim Gladyshev** Systems approaches to thiol- and selenol-based redox control
Invited Speaker 9:40-10:10 am **Phil Hogg** Multiple covalent protein forms: new look at the mature functional protein
Selected Talk 10:10-10:30 am **Pramod Subedi*** The identification and characterisation of an unusual disulfide bond forming protein from *Salmonella typhimurium*.

Morning Tea 10:35-11:05 am

Morning Session 2

Chairs: John Aitken & Judy DeHaan

Invited Speaker 11:05-11:35 am **John Aitken** Oxidative stress and fertility.
Selected Talk 11:35-11:55 am **Judy DeHaan** Novel antioxidant and anti-inflammatory treatments for diabetic cardiovascular complications.
Selected Talk 11:55-12:15 pm **Julie Lim** Circadian regulation of glutathione homeostasis in the lens.
Selected Talk 12:15-12:35 pm **Renita Martis*** Cysteine analogues as protective agents against lens cataract.
Selected Talk 12:35-12:55 pm **Annika Seddon*** Epigenetic regulation of gene expression following exposure to neutrophil oxidants.

Lunch 1:00-2:00 pm

Afternoon Session 3

Chair: Nina Dickerhof

Plenary Lecture 2:00-2:40 pm **Peter Sly** Oxidative stress in cystic fibrosis.
Selected Talk 2:40-3:00 pm **Joshua Chandler** Oxidized methionine species in pediatric cystic fibrosis airways implicate hypochlorous acid exposure in lung damage.

Afternoon Break 3:05-3:15 pm

Afternoon Session 4

Chairs: Louisa Ashby & Paul Witting

Selected Talk 3:15-3:35 pm **Ayaho Yamamoto*** Environmentally persistent free radicals: Oxidative stress & related gene expression effects on well-differentiated human nasal epithelium.
Selected Talk 3:35-3:55 pm **Paul Witting** Neutrophil extracellular trap density increases with increasing histopathological severity of Crohn's disease
Selected Talk 3:55-4:15 pm **Belal Chami** Can myeloperoxidase alone initiate early stages of colitis?
Selected Talk 4:15-4:35 pm **Thomas O'Neil*** Defining and characterising mononuclear phagocyte populations in human healthy and Crohn's-affected tissue.

Poster Session 1 4:35 pm -6:00 pm

Selected Poster Pitches Chair: Jereme Spiers
Abigail Schwartfeger*, Ansa Thomas*, Jia Jing Shao*,
Te Rina King-Hudson*, Tamara Ortiz Cerda*.

***Early Career Researcher**

Social get together 6:00 pm onwards at the Astro Lounge

Tuesday 6 December

Dawn Dialogue 8:15-9:00 am

What are redox signals telling us?

Mark Hampton with Christine Winterbourn, Tobias Dick (Zoom),
Mike Murphy (Zoom)

10 min break

Morning Session 5

Invited Speaker 9:10-9:40 am

Aki Hirayama

Chair: Margreet Vissers

Serum multiple radical scavenging activity assay (MULTIS) as a non-behavioural diagnostic biomarker for autism spectrum disorders.

Selected Talk 9:40-9:55 am

Heather Shearer*

A *Streptococcus pneumoniae* genome-wide screen identifies genes that confer tolerance to hypothiocyanous acid.

Selected Talk 9:55-10:15 am

Nina Dickerhof

Hypothiocyanous acid reductases as protective mechanisms in respiratory pathogens.

Morning Tea 10:20-10:45 am

Morning Session 6

Chair: Yukio Nagasaki & Andrew Bulmer

Plenary Lecture 10:45-11:25 am

Ursula Jakob

Early life ROS as modulator of lifespan and age-associated diseases. (by Zoom)

Invited Speaker 11:25-12:05 pm

Gemma Figtree

New strategies to discovering coronary artery disease biomarkers- beyond traditional risk factors.

Selected Talk 12:05-12:25 pm

Xiaoying Wang*

Molecular MR imaging of unstable plaque targeting myeloperoxidase activity in a rabbit atherosclerosis model.

Selected Talk 12:25-12:40 pm

Steven Giese

Scavenger receptor CD36 levels may be moderated by redox balance of 7,8-dihydroneopterin/neopterin with atherosclerotic plaque

CONFERENCE PHOTO

Lunch 12:45-2:00 pm

SFRRRA Annual General Meeting

1:15-2:00 pm (Rolleston Lecture Theatre)

SFRRJ Annual General Meeting

1:15 -2:00 pm (Room 709)

Afternoon Session 7

Chair: Hirofumi Matsui & Guy Jameson

Invited Speaker 2:00-2:30 pm

Yukio Nagasaki

Antioxidant nanoparticles for oxidative stress diseases

Selected Talk 2:30-2:45 pm

Hayley Turnham*

The production of nanobodies as a tool for understanding ferritin in *C. elegans*.

Selected Talk 2:45-3:00 pm

Zac Tillet*

Developing conformationally selective nanobodies for peroxiredoxin 1.

Selected Talk 3:00-3:15 pm

Albaraa Mojadadi*

Characterising the effects of nano-selenium on metabolism and microbiome health in mouse models.

Afternoon Break 3:15-3:25 pm

Afternoon Session 8

Chair: Christine Winterbourn

Selected Talk 3:25-3:45 pm

Mike Berridge

Roles of respiration & ATP production in tumorigenesis & metastasis.

Selected Talk 3:45-4:00 pm

Carlos Smith Diaz*

Low maternal vitamin C during guinea pig pregnancy causes epigenetic dysregulation in the hippocampus of offspring together with an ADHD-related phenotype.

Selected Talk 4:00-4:20 pm

Jereme Spiers

Identification of inflammatory nitric oxide signalling in brain-derived extracellular vesicles using advanced surface analysis.

Poster Session 2 4:25 pm-6:00 pm

Selected Poster Pitches Chair: Tamara Ortiz Cerda
Jennifer Supple*, Chloe Mountain*, Grace Borichevsky*,
Nick Magon, Alice Au*.

Conference Dinner Ilex Botanical Gardens – Drinks from 6:30 pm; seated at 7:15 pm

Wednesday 7 December

Dawn Dialogue 8:15-9:00 am

Where are oxidative footprints leading us?

Mark Hampton with Tony Kettle, Vadim Gladyshev, Peter Sly

10 min break

Morning Session 9

Plenary Lecture 9:10-9:50 am

Mike Gray

Chair: Vadim Gladyshev

Bacterial mechanisms of hypochlorite resistance

Selected Talk 9:50-10:10 am

Christine Winterbourn CO₂/bicarbonate requirement for rapid inactivation of mammalian GAPDH by low concentrations of H₂O₂.

Selected Talk 10:10-10:30 am

Guy Jameson Ferroxidase reactivity of *C. elegans* ferritins.

Morning Tea 10:35-11:00 am

Morning Session 10

Chairs: Christoph Goebel & Vanessa Morris

Selected Speaker 11:00-11:20 am

Margaret Sunde Competing roles for functional amyloid fibrils in programmed cell death by necroptosis.

Selected Talk 11:20-11:40 am

Vanessa Morris Cysteine oxidation triggers amyloid fibril formation of the tumor suppressor p16.

Selected Talk 11:40-11:55 am

Noralyn Manucat-Tan* Hypochlorite – a novel inhibitor of amyloid beta aggregation and toxicity.

Selected Talk 11:55-12:10 pm

Jake Andersen* Examining the reactivity and speciation of selenoneine *in vitro* via synchrotron radiation.

Selected Talk 12:10-12:25 pm

Gawain McColl Optogenetic triggered lipid peroxidation.

Lunch 12:30 pm – 1:30 pm

(SFERRA & SFRRJ Executive committees meet together Room 709)

Afternoon Session 11

Chairs: Liz Ledgerwood & Julie Lim

Plenary Lecture 1:30-2:10 pm

Hirofumi Matsui A novel cancer therapy using proton beam: an integrated proton dynamic therapy, iPDT.

Selected Talk 2:10-2:30 pm

Bob Anderson Ubiquinone negatively affects the activity of bioreductive prodrugs against hypoxic tumour cells.

Selected Talk 2:30-2:45 pm

Martina Paumann-Page Peroxidase as a modulator of cancer cell invasion.

Selected Talk 2:45-3:00 pm

Patries Herst Metabolic flexibility and metastasis in a murine breast cancer model.

Selected Talk 3:00-3:15 pm

Yuta Koda* Design of nanomedicine based on polycysteine suppressing C26-tumor growth on a xenograft mouse model.

Closing Address 3:15-3:30 pm

Rangihau Te Moana

Tony Kettle, Louisa Ashby *et al*