THE VENUE

VICTORIAN TREASURY THEATRE, MELBOURNE VICTORIA AUSTRALIA
Workshop Program

Sunday March 20

4:00 – 6:00 pm Registration at the Victorian Treasury Theatre
6:00 – 8:00 pm Welcome Reception at The Commune

Monday March 21

9:00 – 10:00 am Workshop Opening, and Keynote speaker 1
10:00 - 10:30 am Coffee break
10:30 am – 12:30 pm Session I: DNA chemistry & oxidative DNA damage 1
12:30 - 1:30 pm Lunch & Trade displays
1:30 - 3:30 pm Session II: DNA chemistry & oxidative DNA damage 2
3:30 – 4:00 pm Coffee break
4:00 – 6:00 pm Session III: Monte Carlo modelling
6:00 – 8:00 pm Poster session 1, Wine & cheese, Trade displays

Tuesday March 22

9:00 – 10:00 am Keynote Speakers 2,3
10:00 – 10:30 am Coffee break
10:30 am – 12:30 pm Session IV: Translational radiation oncology & nuclear medicine
12:30 – 1:30 pm Lunch & Trade displays
1:30 – 3:30 pm Session V: Radiosensitivity & normal tissue toxicity
3:30 – 4:00 pm Coffee break
4:00 – 6:00 pm Session VI: Radiation biomarkers
6:00 – 8:00 pm Poster session 2, Wine & cheese, Trade displays

Wednesday March 23

9:00 – 10:00 am Session VII: Radiation risks and countermeasures
10:00 – 10:30 am Coffee break
10:30 am – 12:30 pm Session VIII: Biological consequences of the Auger effect
12:30 – 1:30 pm Lunch & Trade displays
1:30 – 3:30 pm Session IX: DNA damage response
3:30 – 4:00 pm Coffee break
4:00 – 6:00 pm Session X: Non-targeted effects, & low dose risk
6:00 – 7:30 pm Bill Morgan Prize and Wine and Cheese Reception

Thursday March 24

9:00 – 11:30 am Coffee and short presentations at the Australian Synchrotron
11:30 am – 12:30 pm Tour at the Australian Synchrotron
12:30 – 5:00 pm Half-day tour to Yarra Valley, Healesville Sanctuary and wineries
5:30 – 9:00 pm Conference dinner at De Bortoli, Yarra Valley, Award presentations
Sunday March 20

4:00 – 6:00 pm Registration at the Victorian Treasury Theatre

6:00 – 8:00 pm Welcome Reception at The Commune
   Sponsored by Precision X-Ray

Monday March 21

9:00 – 10:00 am
Workshop Opening
   Roger Martin, Australia
   Welcome

   Lester Peters, Australia
   Ceremonial Opening

   Michael MacManus, Australia
   Experimental Radiation Oncology at PeterMac

   Keynote Speaker 1
   L01 Steve Jones, Sirtex Medical, Australia
   Translating a scientific idea into a product – the Sirtex story
   Faxitron Presentation

10:00 —10:30 am Coffee break

10:30 am – 12:30 pm
Session I: DNA chemistry & oxidative DNA damage 1
Chairs: Bob Anderson, NZ/ Peter O’Neill, UK

   L02 Masatoshi Ukai, Tokyo University (22 min)
   Selective energy deposition to nucleobases in the primary interaction using a soft X-ray synchrotron radiation

   L05 Amitava Adhikary, Oakland University, USA (22 min)
   Chemical mechanisms involved in radiation-induced DNA damage via direct-type effects: an up-to-date review
**L06 Bob Anderson**, The University of Auckland, NZ (22 min)
DNA hole formation and migration in aqueous solution

**L04 Elise Dumont**, National Centre for Scientific Research, France (22 min)
Probing the reactivity underpinning DNA lesions by multiscale simulations

**L03 Peter O’Neill**, Oxford University, UK (22 min)
Tracking the fate of cellular DNA damage in real time following short-pulse electron irradiation

Selected talk

**L07 Emmanuelle Bignon**, Université de Lyon, France (9 min)
Modelling the intrastrand cross-links impact on DNA structure

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12:30 - 1:30 pm
Lunch & Trade displays

1:30 pm — 3:30 pm Session II: DNA chemistry & oxidative DNA damage 2
Chair: Roger Martin, Australia/Elise Dumont, France
Session supported by Sirtex Medical

**L08 Jean-Luc Ravanat**, Atomic Energy and Alternative Energies Commission, France (25 min)
UV-induced oxidative lesions: involvement of one-electron oxidation reaction

**L09 Miral Dizdaroglu**, National Institute of Standards and Technology, USA (25 min)
Small molecule inhibitors of DNA glycosylases as potential drugs in chemo- and radiotherapies

**L10 Hiroshi Ide**, Hiroshima University, Japan (25 min)
Induction of DNA-protein cross-links by ionizing radiation and their repair in cells

**L11 Jonathan White**, The University of Melbourne, Australia (25 min)
Fast chemical repair of DNA damage by one electron reduction

Selected talks

**L12 Jai Smith**, Peter MacCallum Cancer Centre, Australia (10 min)
Radioprotection by the combination of DNA binding antioxidants and aminothiol radical scavengers
L13 François Dehez, CNRS, France (10 min)
Thermodynamics of DNA: sensitizer recognition. Comparing binding motifs with all-atom simulations

Small Animal Radiation Research Platform - Xstrahl

3:30 – 4:00 pm Coffee break

4:00 – 6:00 pm Session III: Monte Carlo modelling
Chairs: Eva Bezak, Australia/Anatoly Rosenfeld, Australia

Session Supported by DHHS Victoria

L14 Suzanna Guatelli, University of Wollongong, Australia (25 min)
Predicting the physics foundation of DNA damage: The Geant4-DNA project and its applications

L15 Ianik Plante, NASA, USA (25 min)
Multi-scale modelling of radiation-induced DNA damage

L16 Michael Dingfelder, East Carolina University, USA (25 min)
Advances in track structure modelling: cross sections and more

L17 Barry Allen, The University of Western Sydney, Australia (25 min)
MC modelling of targeted alpha therapy

Selected talks

L18 Jake Forster, University of Adelaide, Australia (10 min)
Development of a computational tumour growth model: cellular, temporal, spatial and includes tumour angiogenesis

L19 Reza Taleei, UT Southwestern Medical Center, USA (10 min)
Modelling DNA double-strand break and repair induced by different radiation quality

Precision Xray: SmART Advances in Image Guided Radiation Therapy Research Systems

6:00 – 8:00 pm Poster session 1
Wine & cheese, Trade displays
Supported by VCCC; Victorian Comprehensive Cancer Centre
M01 Boon Lee, The Australian National University, Australia
Single-cell S-values calculations for Auger electron-emitting radionuclides

M02 Hilary Byrne, University of Sydney, Australia
Relative impact of fluorescence and Auger emission from gold atoms on surrounding biological tissue – implications for nanoparticle radiosensitisation

M03 Kentaro Fujii, Japan Atomic Energy Agency, Japan
Roles of hydration for inducing DNA strand breaks by ionization of oxygen K-shell electrons

M04 Nadia Falzone, University of Oxford, United Kingdom
The effect of cell eccentricity on single-cell S-value calculations for Auger electron-emitting radionuclides

M05 Sarah Mazza, Peter MacCallum Cancer Centre, Australia
Modification of X-ray induced DNA damage by iodinated minor groove binding ligand

M06 Abdelrazek Abdelrazzak, National Research Centre, Egypt
Enhancement of peroxidase release from non-malignant and malignant cells through low-dose irradiation

M07 Masamitsu Honma, National Institute of Health Sciences, Japan
Tracing the fates of site-specifically introduced oxidative DNA damage in the human genome

M08 Masahiro Miyaji, Kyoto University, Japan
Does oxidation resistance 1 (OXR1) repair oxidative DNA damage?

M09 Saloua Sahbani, University of Sherbrooke, Canada
Effect of gamma radiation and low energy electrons on DNA functionality

M10 Samanta Makurat, University of Gdansk, Poland
Adenine radical induced DNA lesions

M11 Stefanie Vogel, University of Potsdam, Germany
Determination of ionization threshold of oligonucleotide sand sequence-specific VUV-induced DNA strand breaks using DNA origami technique

M12 Subhojyoti Chatterjee, Swinburne University of Technology, Australia
How unique of pyrimidine as a DNA base among diazine isomers? A quantum mechanics study

M13 Toshiaki Nakano, Hiroshima University, Japan
Analysis of DNA-protein cross-links induced by aldehydes
M14 François Dehez, CNRS, France
Thermodynamics of DNA: sensitizer recognition. Comparing binding motifs with all-atom simulations

M15 Jake Forster, University of Adelaide, Australia
Development of a computational tumour growth model: cellular, temporal, spatial and includes tumour angiogenesis

M16 Jan Schuemann, Massachusetts General Hospital, USA
The TOPAS-nBio project: A Monte Carlo simulation toolkit for radiation biology

M17 Loredana Marcu, University of Oradea, Romania
Monte Carlo of cancer stem cell-targeting agents and their effect on tumour control

M18 Reza Taleei, UT Southwestern Medical Center, USA
Modelling DNA double-strand break and repair induced by different radiation quality

M19 Asako Nakamura, Ibaraki University, Japan
The use of gamma-H2AX assay for validation of radioprotective effect of tempol against acute and chronic radiation exposure

M20 Stacy Muise, McMaster University, Canada
Low dose ionizing radiation and the immune system: pulmonary investigations

M21 Elette Engels, University of Wollongong, Australia
Enhancing the efficiency of microbeam radiation therapy with high-Z nanostructured ceramic particles

M22 Jessica Ventura, The Royal Women’s Hospital, Australia
Synchrotron MRT radiation induces DNA damage and inflammatory response in normal mouse tissues distant from the irradiated volume

M23 Katherine Ververis, Baker IDI Heart and Diabetes Institute, Australia
Mechanistic insights to DNA damage from hypoxia reperfusion injury in cardiac myocytes using synchrotron FTIR
Tuesday March 22

9:00 – 10:00 am

Keynote Speaker 2
Chair: Benjamin Blyth, Japan

L20 Pam Sykes, Flinders University, Australia
The pKZ1 Radiation Dose Response: Ups and Downs

Keynote Speaker 3
Chair: Emmy Rogakou, Greece

L21 Bill Bonner, NIH, USA
ELISA for γ-H2AX and H2AX
Session Supported by Varian

Varian Acknowledgement

10:00 – 10:30 am Coffee break

10:30 am – 12:30 pm Session IV: Translational radiation oncology & nuclear medicine
Chairs: Kevin Prise, UK/Katherine Vallis, UK
Session supported by XStrahl and TrendBio

L22 Katherine Vallis, University of Oxford, UK (30 min)
Development of Radionuclide Theranostics to Target DNA Repair: New Models, Materials and Modes of Localization

L23 Bill Wilson, The University of Auckland, NZ (25 min)
Hypoxia-activated prodrugs: bystander effects and predictive biomarkers

L24 Ivan Kempson, University of South Australia, Australia (15 min)
Correlating DNA damage with nanoparticle content in radiosensitization at the single cell level: A quantitative cross-correlative approach

L25 Kevin Prise, Queen's University Belfast, UK (20 min)
Metal-based nanoparticles as theranostic agents in preclinical models

Selected talks
L26 Katherine Morel, Flinders University, Australia (10 min)
The dual role of parthenolide: protecting healthy tissues while sensitising prostate tumours to radiotherapy

L27 Anna Michaelidesová, Nuclear Physics Institute, Czech Republic (10 min)
Relative biological effectiveness in proton therapy

12:30 – 1:30 pm Lunch & Trade displays

1:30 – 3:30 pm Session V: Radiosensitivity & normal tissue toxicity
Chairs: Olga Martin, Australia/Ruth Wilkins, Canada
Session Supported by DHHS Victoria

L28 David Murray, University of Alberta, Canada (25 min)
Role of DNA damage response and cell death pathways in the variability of normal cell and tissue responses to ionizing radiation

L29 Penny Jeggo, University of Sussex, UK (25 min)
The response of neuronal stem cells to radiation

L30 Trevor Leong, Peter MacCallum Cancer Centre, Australia (25 min)
γ-H2AX as a predictive biomarker of individual radiosensitivity

L31 Shankar Siva, Peter MacCallum Cancer Centre, Australia (25 min)
DNA damage and cytokines as in-vivo biomarkers of toxicity in patients receiving curative lung radiotherapy

Selected talks

L32 Stacy Muise, McMaster University, Canada (10 min)
Low dose ionizing radiation and the immune system: pulmonary investigations

L33 Benjamin Blyth, National Institute of Radiological Sciences, Japan (10 min)
Detecting cancer-relevant DNA damage due to heavy ion exposure

3:30 – 4:00 pm Coffee break

4:00 – 6:00 pm Session VI: Radiation biomarkers
Chairs: Michael Fenech, Australia/ Asako Nakamura, Japan
Session supported by AMNIS, IMSTAR and Metasystems
L34 Satoshi Tashiro, Hiroshima University, Japan (25 min)
CT scan-induced DNA damage in children measured using molecular markers and nanoscope technology

L35 Ruth Wilkins, Environmental Radiation and Health Sciences Directorate, Health Canada (25 min)
Use of imaging flow cytometry in radiation biodosimetry

L36 Yumiko Suto, National Institute of Radiological Science, Chiba, Japan (25 min)
Biological dosimetry during and after the Fukushima accident

L37 Michael Fenech, SCIRO, Australia (25 min)
New developments in micronucleus cytome assay as biomarkers of radiation-induced DNA damage

Selected talks

L38 Mohammad Siddiqui, CSIRO, Australia (10 min)
\(\gamma\)-H2AX responses in human buccal cells exposed to ionizing radiation

L39 Carine Laurent, Universite de Caen Normandie, France (10 min)
Production of early and late nuclear DNA damage and extracellular 8-oxodG in normal human skin fibroblasts after carbon ion irradiation compared to X-rays

6:00 – 8:00 pm Poster session 2
Wine & cheese
Trade displays
Supported by Australia-Japan Foundation

T01 Huiling Xu, Peter MacCallum Cancer Centre, Australia
A Roberts syndrome family with differential genotoxin sensitivity and a DNA damage response defect

T02 Ifigenia Mavragani, National Technical University of Athens, Greece
Identification of the key mechanisms in ionizing radiation-induced non-targeted effects

T03 Katherine Ververis, Baker IDI Heart and Diabetes Institute, Australia
Comparison of DNA damage and repair in stem, normal and malignant cells following exposure to ionising radiation

T04 Purba Nag, QIMR Berghofer Medical Research Institute, Australia
Delineating the overlapping roles of SSB1 and SSB2 in the maintenance of genomic stability
T05 Yuichiro Hayashi, Kyoto University, Japan
Human dimethyltransferases, DIM1TL and TFB1M are involved in base excision repair

T06 Atsushi Shibata, Gunma University, Japan
Analysis of cluster DNA double strand break after heavy ion irradiation using high resolution microscopy

T07 Benjamin Blyth, National Institute of Radiological Sciences, Japan
Detecting cancer-relevant DNA damage due to heavy ion exposure

T08 Emmy Rogakou, University of Athens, Greece
Study of γH2AX pattern differences between irradiated and apoptotic mouse cells along differentiation

T09 Ruqaya Darwish, University of Adelaide, Australia
Investigation of DNA double-strand breaks correlation with alpha particle absorbed dose using radiation and biological dosimetry

T10 Mohammad Siddiqui, CSIRO, Australia
γ-H2AX responses in human buccal cells exposed to ionizing radiation

T11 Yudai Izumi, Japan Atomic Energy Agency, Japan
Secondary structural alteration of histone H2A-H2B induced by DNA damage responses

T12 Anna Michaelidesová, Nuclear Physics Institute, Czech Republic
Relative biological effectiveness in proton therapy

T13 Carine Laurent, Universite de Caen Normandie, France
Production of early and late nuclear DNA damage and extracellular 8-oxodG in normal human skin fibroblasts after carbon ion irradiation compared to X-rays

T14 Narongchai Autsavapromporn, Chiang Mai University, Thailand
Biological responses between carbon-irradiated cancer cells and bystander normal cells: implication of fractionation for radiotherapy

T15 Alesia Ivashkevich, Canberra Hospital, Australia
Combined effects of dichloroacetate and vorinostat on radiation sensitivity of colorectal carcinoma in vitro

T16 Christina Sparbier, Canberra Hospital, Australia
Detection of alternative transcription as a result of pharmacologically induced radiosensitization using RT-MLPA
T17 Debottam Sinha, QIMR Berghofer Medical Research Institute, Australia
Characterisation of CEP55 as a key regulator of genomic instability

T18 Jai Smith, Peter MacCallum Cancer Centre, Australia
Radioprotection by the combination of DNA binding antioxidants and aminothiol radical scavengers

T19 Katherine Morel, Flinders University, Australia
The dual role of parthenolide: protecting healthy tissues while sensitising prostate tumours to radiotherapy

T20 Luděk Vyšín, Institute of Physics, Czech Academy of Sciences, Czech Republic
The study of radiation damage to DNA using short wavelength lasers

T21 Madeline Van Dongen, Swinburne University of Technology, Australia
Regioisomers of nitroimidazole radiosensitizers studied using IR and UV-Vis absorption spectra

T22 Pawel Wityk, University of Gdansk, Poland
Model systems for studying DNA sensitisation

T23 Sally McKinnon, University of Wollongong, Australia
Effect of ceramic Ta₂O₅ nanoparticle distribution on cellular dose enhancement in a kilovoltage photon field

T23 Xiaoyu Yin, Peter MacCallum Cancer Centre, Australia
Development of a functional assay for assessment of a predisposition to cancer risk in a sarcoma population based on constitutive defects in DNA repair
Wednesday March 23

9:00 – 10:00 am Session VII: Radiation risks and countermeasures
Chair: Tony Hooker/Pam Sykes, Australia

L40 John Mathews, University of Melbourne, Australia (20 min)
Increased rates of cancer after low-dose radiation from CT scan: how much due to reverse causation?

L41 Tony Hooker, Environment Protection Authority, Australia (20 min)
Radiation and risk: Is it time for a regulatory threshold?

L42 Vijay Singh, AFRRI, USA (20 min)
Armed Forces Radiobiology Research Institute:
Development of countermeasures for acute radiation syndrome

10:00 – 10:30 am Coffee break

10:30 am – 12:30 pm Session VIII: Biological consequences of the Auger effect
Chair: Pavel Lobachevsky, Australia/Akinari Yokoya, Japan

L43 Tibor Kibedy, The Australian National University, Australia (15 min)
Auger-emitting medical isotopes – a 21st century physics perspective

L44 Akinari Yokoya, Japan Atomic Energy Agency, Japan (20 min)
DNA damage induction induced by K-shell ionization and succeeding Auger effect

L45 John Violet, Peter MacCallum Cancer Centre, Australia (20 min)
Triple targeted Auger radionuclide therapy for the treatment of neuroendocrine tumours

L46 Jean-Pierre Pouget, Institute of Cancer Research of Montpellier, France (20 min)
Involvement of targeted and non-targeted cytotoxic effects in radionuclide therapy using Auger electron emitters

L47 Ralf Kriehuber, University of Rostock, Germany (20 min)
Cyto- and genotoxicity of Tc-99m and I-125 in the thyroid cell line FRTL-5 with and without inhibition of the cellular uptake

Selected talks
L48 Hilary Byrne, University of Sydney, Australia (10 min)
Relative impact of fluorescence and Auger emission from gold atoms on surrounding biological tissue – implications for nanoparticle radiosensitisation

L49 Boon Lee, The Australian National University, Australia (10 min)
Single-cell S-values calculations for Auger electron-emitting radionuclides

12:30 – 1:30 pm Lunch & Trade displays

1:30 – 3: 30 pm Session IX: DNA damage response
Chair: Martin Lavin, Australia/Penny Jeggo, UK

L50 Andrew Deans, St Vincent's Hospital, Australia (25 min)
The Fanconi Anaemia DNA repair pathway

L51 Derek Richard, Queensland University of Technology, Australia (25 min)
New players in the DNA damage response

L52 Keiji Suzuki, Nagasaki University, Japan (25 min)
DNA damage response in tissues/organs as a signature for radiation effects

L53 Martin Lavin, The University of Queensland, Australia (25 min)
Activation of ATM by oxidative stress

Selected talks

L54 Masamitsu Honma, National Institute of Health Sciences, Japan (10 min)
Tracing the fates of site-specifically introduced oxidative DNA damage in the human genome

L55 Huiling Xu, Peter MacCallum Cancer Centre, Australia (10 min)
RAD21 cohesin mediated DNA double strand repair through homologous recombination

3:30 – 4:00 pm Coffee break

4:00 – 6:00 pm Session X: Non-targeted effects, & low dose risk
Chair: Olga Kovalchuk, Canada/Bill Bonner, USA
L56 Carmel Mothersill, McMaster University, Canada (25 min)
Radiation-induced bystander signals due to secondary UVA emission during beta irradiation of human keratinocytes

L57 Nicole Haynes, Peter MacCallum Cancer Centre, Australia (25 min)
Radiation-dose and fractionation influences the immune modulatory effects of radiotherapy and anti-cancer activity of immunotherapy

L58 Colin Seymour, McMaster University, Canada (25 min)
Effects of chronic low dose radium ingestion in fish: evidence for an adaptive response

L59 Olga Kovalchuk, Lethbridge University, Canada (25 min)
Low dose radiation effects on the brain - from molecular mechanisms to behavioral repercussions

Selected talks

L60 Narongchai Autsavapromporn, Chiang Mai University, Thailand (10 min)
Biological responses between carbon-irradiated cancer cells and bystander normal cells: implication of fractionation for radiotherapy

L61 Abdelrazek Abdelrazzak, National Research Centre, Egypt (10 min)
Enhancement of peroxidase release from non-malignant and malignant cells through low-dose irradiation

6:00 – 7:30 pm Bill Morgan Prize and Wine and Cheese Reception
Thursday March 24

8:15 am Buses departure from Sofitel

9:00 – 11:30 am Coffee and short presentations at the Australian Synchrotron
Chair: Jeff Crosbie, Australia
The session is supported by Australian Synchrotron & RMIT

L62 Mike James, Director of Science
The Australian Synchrotron and what it can do for your research

L63 Chris Hall, Beamline Scientist
The Imaging & Medical Beamline at The AS

L64 Martin deJonge, Beamline Scientist
The Fluorescence X-ray microscopy beamline at the AS

L65 Jeff Crosbie, RMIT University, Australia
Preparations for clinical trials of Microbeam Radiation Therapy at The Australian Synchrotron

L66 Helen Forrester, Hudson Institute of Medical Research, Australia
DNA repair and immune associated genes play a role in abscopal effects

L67 Lloyd Smyth, University of Melbourne and The Epworth Hospital
The normal tissue effects of synchrotron microbeam radiotherapy

L68 Paul DiPietro, Australian Institute of Nuclear Science and Engineering, Australia
AINSE – championing nuclear scientific and engineering excellence

11:30 am – 12:30 pm Tour at the Australian Synchrotron

12:30 – 5:00 pm
Half-day tour to Yarra Valley
Healesville Sanctuary and wineries

5:30 – 9:00 pm
Conference dinner at De Bortoli, Yarra Valley
Award presentations
Supported by Faxitron
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