

## PROGRAM

MONDAY, 16th JUNE 2025

8:30	REGISTRATIONS OPEN & Welcome Tea & Coffee		
9:00	WELCOME: Professors Maria Kavallaris, Kris Kilian & Rona Chandrawati		
9:15	OPENING: Professor Julien Epps - Dean of Engineering, UNSW Sydney		
9:30	PLENARY: Christopher Porter - Monash University <i>Co-opting Endogenous Nanoparticles (Lipoproteins) for Enhanced Drug Delivery</i> CHAIR: Maria Kavallaris    ROOM: Water@Pier One		
10:10	MORNING TEA		
SESSION	Drug Delivery	BIOMATERIALS & BIO-NANO INTERFACE	TISSUE ENGINEERING & MICROPHYSIOLOGICAL SYSTEMS
Chair	Sophia Gu	Ruirui Qiao	Ming Li
Room	Water@Pier One	Dawes Point 1&2	Dawes Point 3&4
10:40	Martina Stenzel - UNSW Sydney - Glycopolymers for Solid Brain Tumour Drug Delivery	Justin Cooper-White - The University of Queensland - Intervertebral Disc Regeneration using a Biomimetic Injectable Hydrogel	Hang Ta - Griffith University - Novel Microfluidic Models of Atherosclerosis and Atherothrombosis
11:10	Steven Wise - The University of Sydney - On-Demand Bioactivation of Inert Materials With Plasma-Polymerized Nanoparticles	Ferry Melchels - University of South Australia - In-gel generated palladium nanostructures as bioorthogonal uncaging reactors	Hanjun Kim - Korea University - Biomedical applications of Silicate Nanoplatelet-based Shear-Thinning Hydrogel
11:30	Paul Joyce - University of South Australia - Exploring the role of the gut microbiome on conventional nanomedicines	Jiali Maggie Zhai - RMIT University - Development of Ionizable Lipid Nanoparticles with Structural Insights for Targeted mRNA Delivery	Amy Gelmi - RMIT University - Harnessing Electroceuticals for Stem Cell Fate Control
11:50	Martin Engel - Inventia Life Science - Advancing Nanomedicine Efficiency through Bioprinted Tumoroid Cultures in Translational Oncology Research	Khoon Lim - The University of Sydney - Using Biofabrication to Integrate Multi-scalar Architecture into Tissue Engineered Constructs	Guocheng Fang - Nanyang Technological University - Microlaser technology for better organ- and organoid-on-chip models
12:10	LUNCH		
1:10	PLENARY: Rashid Bashir - University of Illinois at Urbana-Champaign <i>Intersection of Engineering and Biology across the Scales: Opportunities for Personalized Diagnostics and Printing Cellular Machines</i> CHAIR: Kris Kilian    ROOM: Water@Pier One		
SESSION	DRUG DELIVERY	BIOMATERIALS & BIO-NANO INTERFACE	SENSORS & IMAGING
Chair	Weiyu Chen	Orazio Vittorio	Ying Zhu
Room	Water@Pier One	Dawes Point 1&2	Dawes Point 3&4
1:55	Jinming Hu - University of Science and Technology of China - Biomimetic Activation of Nitrosamides with Red Light-Triggered Nitric Oxide Release via Mediated Electron Transfer	Jan Grimm - Memorial Sloan Kettering Cancer Center - Metal-optosis Warfare Against Cancer	Xing Yi Ling - Nanyang Technological University - AI + SERS = The Future of Predictive Sensing
2:25	Li Li - Charles Sturt University - Engineering Biomaterials for Personalised Nanovaccine and Biomedicines	Giuseppe Cirillo - University of Calabria - Functionalizing polymers to align the redox state of tumour micro-environment: challenges, opportunities and perspectives	Xiaoyu Cheng - Zhejiang University - Low Cost Single Molecule Fluorescence Sensing of Nucleic Acid and Protein Biomarkers in Clinical Samples with Attomole Sensitivity
2:45	Jagat R Kanwar - All India Institute of Medical Sciences - Nano-theranostics for Real-time Imaging and On-chip Microfluidic Assays: Promises of Precision Nanomedicine	Chang Lei - The University of Sydney -	Lan Fu - Australia National University - Nanowire Breath Acetone Sensor for Metabolic Health Monitoring
3:05	AFTERNOON TEA		
SESSION	DRUG DELIVERY	BIOMATERIALS & BIO-NANO INTERFACE	SENSORS & IMAGING
Chair	Paul Joyce	Peter Wich	Xiaoyu Cheng
Room	Water@Pier One	Dawes Point 1&2	Dawes Point 3&4
3:40	Haihua Wang - Shaanxi University of Science of Technology - Crosslinked Zwitterionic Hydrogel with Integrated Functionality for Health Management and Monitoring	Yi Shen - The University of Sydney - Monitor and Modulate the Phase Behaviour of Biomolecular Condensate by Using Microfluidic and Optical Techniques	Xiaodi Su - A*STAR - Portable Bacteria Sensors for Environmental and Multidrug-Resistant Pathogen Surveillance
4:00	Sanghvi Han - Korea Institute of Science and Technology - Adaptive Delivery Strategies for Nanozyme Therapeutics	Kristian Kempe - Monash University - PEG-free Drug Formulations: From Polymer Drug Conjugates to Lipid Nanoparticles	Yuyang Gu - University of Technology Sydney - Time-resolved imaging and sensing in the near-infrared: Towards quantitative in vivo imaging
4:20	Timothy Tan - Nanyang Technological University - Clinically Effective Scar Treatment via a siRNA Transdermal Gene Silencing Technology: from Bench to Bedside and Beyond	Weiyu Chen - Zhejiang University - Precision Therapies for Cancer via Functional Layered Double Hydroxides Nanomedicine	Gina Adam - George Washington University - Local Neuromorphic Computing with Emerging Nanodevices for Real-time High-resolution Therapy of Cardiac Fibrillation
4:40	Nhiem Tran - RMIT University - Targeting Autoimmune Kidney Disease with Lipid Nanoparticles	Mostafa Kamal Masud - The University of Queensland - Nanoflower Sensor for Screening Pregnancy Complications via Profiling Circulating Placental Extracellular Vesicles	Abu Sina - UNSW Sydney - Interfacial Biosensing: A New Tool for Sensing Cancer Biomarkers
5:00	WELCOME DRINKS & SNACKS		

## PROGRAM

TUESDAY, 17th JUNE 2025

8:30	REGISTRATIONS OPEN & Welcome Tea & Coffee		
9:00	<b>PLENARY:</b> Kate Schroder - The University of Queensland <i>Inflammasomes: from Fundamental Biology to New Therapeutics</i> <b>CHAIR:</b> Rona Chandrawati    <b>ROOM:</b> Water@Pier One		
SESSION	DRUG DELIVERY	BIOMATERIALS & BIO-NANO INTERFACE	SENSORS & IMAGING
Chair	Nhiem Tran	Kristian Kempe	Abu Sina
Room	Water@Pier One	Dawes Point 1&2	Dawes Point 3&4
9:45	Jie Zheng - The University of Texas at Dallas - Nanoparticle Transport and Interactions in the Kidneys	Lisbeth Grondahl - The University of Queensland - Testing the Longevity of Surface Coatings as a Core Part of Material Evaluation	Tijana Jovanovic-Talman - City of Hope - Single Extracellular Vesicle Nanoscopy-Universal Protocol (SEVEN-UP): accessible imaging platform for quantitative characterization of nanoscopic particles
10:15	Chaoliang Tan - City University of Hong Kong Structural Engineering of Layered 2D Nanomaterials for Cancer Therapy	Guochen Bao - The University of Technology Sydney -	Qian Peter Su - University of Technology Sydney - Temporal, Spatial and Thermal Dynamics of Intracellular Organelles Revealed by Biophysical Nanotools and Advanced Imaging
10:35	MORNING TEA		
SESSION	DRUG DELIVERY	TISSUE ENGINEERING & MICROPHYSIOLOGICAL SYSTEMS	SENSORS & IMAGING
Chair	Li Li	Amy Gelmi	Yuyang Gu
Room	Water@Pier One	Dawes Point 1&2	Dawes Point 3&4
11:10	Hongyi Xu - Australian National University - Electron Crystallography Methods for Drug Discovery	Ann Na Cho - The University of Sydney - Brain Tissue-on-a-chip Platform to Spatiotemporally Regulate the Cell-to-organ Level Communication	Yuling Wang - Macquarie University - Small Extracellular Vesicles: Emerging Cancer Biomarkers and Therapeutic Tools
11:30	Ruirui Qiao - The University of Queensland - Droplet-Engineered Organoid Models for Precision Drug Screening: A Surfactant-Enabled Microfluidic Approach	Sara Baratchi - Baker Heart and Diabetes Institute - Bioengineering Approach to Study Biomechanical Drivers of Calcific Aortic Valve Disease	Lei Bao - RMIT University - Carbon dot-Based Nanomaterials for Bioimaging and Biosensing
11:50	Andrew Care - The University of Technology Sydney -	Jiao Jiao Li - University of Technology Sydney - Stem cell-based regenerative therapies for bone and joint diseases	Chaochao Chen - University of Technology Sydney - Nonlinear Super-resolution Imaging with Upconversion Nanoparticles
12:10	Xinyu Liu - Peking University - Construction of Artificial Protein Self-Assemblies and their Pharmaceutical Applications	Chantal Kopecky - UNSW Sydney - Matrix Stiffness Drives Stemness Signatures in Breast Cancer	Manusha Rajakannage - UNSW Sydney - Enhanced Glucose Sensing through Tailored Enzyme-Inspired Substrate Channels on Electrode Surface
12:30	Lunch		
1:30	<b>PLENARY:</b> María José Alonso - University of Santiago de Compostela <i>How Nanotechnology Transforms the Delivery of Biological Drugs</i> <b>CHAIR:</b> Martina Stenzel    <b>ROOM:</b> Water@Pier One		
SESSION	POSTER SETUP	CLINICAL CHALLENGES	INDUSTRY SESSION
Chair		Ashish Diwan & Ben Kong	Tushar Kumeria
Room	Water@Pier One	Dawes Point 1&2	Dawes Point 3&4
2:15	POSTER SETUP	James Chong - Westmead Institute for Medical Research, The University of Sydney and Westmead Hospital - Proteins, Peptides and Advanced Cell Therapies to Treat Heart Failure	Lin Ding - Smart MCs Pty Ltd - Redraw Our Roadmap with Customer Voices: The Iterative Path to Commercialisation
2:35	POSTER SETUP	Anushka Patel - The George Institute for Global Health - Hypertension - the leading risk factor for disease burden globally	Cong Vu - NanoSoils Bio Pty Ltd - Can My Nanomedicine be Useful for Other Things?
2:55	POSTER SETUP		Industry Pitch
3:15	AFTERNOON TEA		
3:50	POSTER PRESENTATION COMPETITION - Water@Pier One <b>Chair:</b> Peter Wich		
5:00 - 6:00	POSTER SESSION - Water@Pier One		
6:00	POSTER PRIZE AWARDS ANNOUNCEMENT & PRESENTATION - Water@Pier One		
6:30- 930	CONFERENCE DINNER - Water @Pier One		

Poster presentations at the 15th International Nanomedicine Conference will take place in two sessions:

- 1) Three minute poster presentation session from 3:50pm in Water@Pier One
  - a. Through this session presenters must succinctly highlight the unique aspects of your research, as well as comment on commercial opportunities using no more than three PowerPoint slides.
  - b. Presenters in this session are eligible for one of five (5) poster prizes to be judged during the session.
  - c. Presenters in this session must also display their posters in the traditional session (described below).
- 2) Traditional poster display from 5:00 in Water@Pier One
  - a. All poster presenters must display their paper in the traditional poster session, and be with their poster on Tuesday evening to discuss their work.
  - b. Please submit your poster to registration desk by 9am on Tuesday.
  - c. Please collect your poster at the conclusion of the poster session, or from the registration desk on Wednesday.

PROGRAM		WEDNESDAY,18th JUNE 2025	
8:30	REGISTRATIONS OPEN		
9:00	PLENARY: Fabian Kiessling - University of Aachen Diagnostic Nanoparticles for Drug Delivery, Cell Tracking and Tissue Engineering CHAIR: Justin Cooper-White    ROOM: Water@Pier One		
SESSION	DRUG DELIVERY	BIOMATERIALS & BIO-NANO INTERFACE	TISSUE ENGINEERING & MICROPHYSIOLOGICAL SYSTEMS
Chair Room	Chaoliang Tan Water@Pier One	Mostafa Kamal Masud Dawes Point 1&2	Junmin Lee Dawes Point 3&4
9:45 Keynote	Chengzhong Michael Yu - The University of Queensland - From Cell-Type-Specific to Cell-Phenotype-Specific Drug Delivery	Jinyao Liu - Shanghai Jiao Tong University - Nanocoated Bacterial Therapeutics	Y. Shrike Zhang - Harvard Medical School - High-Content Modelling of Human Tissues and Diseases in vitro for Precision Drug and Nanomedicine Screening
10:15 Invited	Canyang Zhang - Tsinghua Shenzhen International Graduate School - Bioinspired Nano/Micro Drug Delivery System for Diseases Treatment	Jiayan Liao - University of Technology Sydney - Optical Fingerprints and Applications of Upconverting Nanoparticles	Hyun-Jong Cho - Kangwon National University - Metal ion-reinforced injectable hydrogel systems for therapeutic applications
10:35	MORNING TEA		
SESSION	DRUG DELIVERY	BIOMATERIALS & BIO-NANO INTERFACE	DRUG DELIVERY
Chair Room	Hongyi Xu Water@Pier One	Khoon Lim Dawes Point 1&2	Xinyu Liu Dawes Point 3&4
11:10 Oral	Peter Davis - ATA Scientific - Extracellular Vesicles - The Wonder-somes	Dakrong Pissuwan - Mahidol University - Biocompatible Gold Nanoparticles for Wound Healing and Regenerative Medicine	Zhiqiang Shen - University of Science and Technology of China - Intracellular Co-Delivery of Carbon Monoxide and Nitric Oxide Induces Mitochondrial Apoptosis for Cancer Therapy
11:30 Oral	Bin Zheng - Hefei Normal University - Construction of Endogenous Gas Responsive and Releasing Materials	Kewu He - Hefei No.1 People's Hospital - Enhancing Hepatocellular Carcinoma Therapy with DOX-Loaded SiO2 Nanoparticles via mTOR-TFEB Pathway Autophagic Flux Inhibition	Thao Phuong Doan Nguyen - National Institute for Materials Science - Mass Transport Phenomena for Preparing Ultrasmall Nanoparticles
11:50 Oral	Zan Dai - Children's Cancer Institute - Advancing Innovative Technologies for the Engineering and Preclinical Testing of PDGFRA-targeting Chimeric Antigen Receptor (CAR)-T cells in DMGs	Nathan Boase - Queensland University of Technology - High-Throughput Synthesis and Evaluation of Antiviral Copolymers for Enveloped Respiratory Viruses	Amy Logan - Children's Cancer Institute - Targeting Neuroblastoma's Weak Spots with GD2-Directed siRNA-Lipid Nanoparticles
12:10 Oral	Shyam Lal Mudavath - University of Hyderabad - Customized Bioactive β-Glucan Conjugated Polymeric Nanoparticles Targeting Inflammatory Macrophages in Pancreatitis Treatment	Kuan Un (Johnny) Wong - Culturon Pty Ltd - Revolutionising Diagnostics and Cell Culture with Plasma-Activated Coatings	Jaret Lee - UpNano GmbH -
12:30	LUNCH		
SESSION	DRUG DELIVERY	BIOMATERIALS & BIO-NANO INTERFACE	TISSUE ENGINEERING & MICROPHYSIOLOGICAL SYSTEMS
Chair Room	Zan Dai Dawes Point 3&4	Nathan Boase Dawes Point 1&2	Chantal Kopecky Water@Pier One
1:30 Oral	Moe El Mohamad - The Peter Doherty Institute for Infection and Immunity - Developing CRISPR-Cas13 Antiviral Therapeutics for Respiratory Pathogens of Pandemic Potential	Franco Centurion Rodriguez - UNSW Sydney - Bioactive Polyphenol-Gallium Nanocoatings for Nitric Oxide Release and Enhanced Biomedical Implant Performance	Nona Farbehi - UNSW Sydney - Spatial Transcriptomics Reveal the Intricate Interactions between Cells and Implants of Different Shapes and Porosities
1:50 Oral	Karen Hakobyan - UNSW Sydney - Enhancing CNS Drug Delivery through Direct Conjugation of an A1 Receptor Antagonist to a Retrograde Transport Protein	Marcela Chaki - University of Wollongong - Multifunctional Oxygen Non-stoichiometric Bismuth (Bi)-based Nanospheres for Melanoma Theragnostic	Bram Soliman - UNSW Sydney - The Interplay of Breast Cancer Size and Shape in Drug Resistance
2:10 Oral	Shiyao Li - Olivia Newton-John Cancer Wellness & Research Centre - Comparative Study on the Circulation and Immune Responses of Different COVID-19 Vaccines in Human Blood	Anton Maraldo - UNSW Sydney - From Chaos to Function: Silk Fibroin as a Design Template for Intrinsically Disordered Multiscale Biomaterials	Michaela George - The University of Queensland - Immunomodulation towards Regenerative Wound Healing by Controlling the Biophysical Properties of Biomimetic, Defined Matrices
2:30 Oral	Qi (Hank) Han - RMIT University - Enhancing Oral Insulin Delivery via Ionic Liquids, Protein Nanogels and Lipid Nanoparticles: formulation, cytotoxicity, nanostructure, stability, and permeability analysis	Irma Vermeijlen - The University of Queensland - The Impact on Protein and Enzyme Encapsulation in Self-assembled Nanoparticles Synthesized via Photopolymerization	Peter K. H. Lee - The University of Western Australia - Developing Three-dimensional In-vitro Culture Models of Skin
2:50	AFTERNOON TEA		
SESSION	DRUG DELIVERY	BIOMATERIALS & BIO-NANO INTERFACE	DRUG DELIVERY
Chair Room	Amy Logan Water@Pier One	Franco Centurion Rodriguez Dawes Point 3&4	Karen Hakobyan Dawes Point 1&2
3:20 Oral	Prabhat Shrestha - Sungkyunkwan University - CD44-Targeted Antibody-Drug Conjugate with Cathepsin B-Cleavable Linker for Selective Delivery of Doxorubicin in Ovarian Cancer	Siti Nur Asyura Adzlan - UNSW Sydney - Nitric Oxide-generating Coating on Biomedical Titanium Implants	Rui Sang - UNSW Sydney - Unlocking the Therapeutic Potential of X-ray Triggered Photodynamic Therapy for Lymph Node Metastasis Treatment in Rectal Cancer Models
3:40 Oral	Lakshika Keerthirathna - Children's Cancer Institute - Advancing mRNA-based Nanomedicines for the in vivo Reprogramming of Circulating T cells to Treat Diffuse Intrinsic Pontine Glioma	Iman Akbarzadeh - University of Technology Sydney - Optimization and Characterization of Nanoparticles for Nanotechnology-Enhanced ELISA in FKBPL Detection and Preeclampsia Monitoring	Qiaoyun Wang - UNSW Sydney - Engineering Fructose-Based Single-Chain Nanoparticles: Modulating Cellular Uptake and Biodistribution
4:00 Oral	Moataz Zewail - The University of Adelaide - Nanoparticle Core Guides the Choice of Cell Membrane Coating Method	Madushani Peiris - The University of Queensland - Microgravity Induced Proteomic Changes of Osteocytes in a Biomimetic 3d Cell Culture System	Srinivas Kamath - University of South Australia - Prebiotic-Functionalised Lipid Nanocarrier Platform: Dual Approach to Mitigate Olanzapine-Induced Metabolic Dysfunction and Enhance Pharmacokinetic Stability
4:30	CLOSING CEREMONY & ORAL PRIZES ANNOUNCEMENT - Water@Pier One		
5:00	FAREWELL DRINKS & PIZZA		