

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 Keynote	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 Invited	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 Invited	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 Invited	Martin Engel - Inventia Life Science - Advancing Nanomedicine Efficiency through Bioprinted Tumoroid Cultures in Translational Oncology Research	Khoo 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 Keynote	Jinming Hu - University of Science and Technology of China - Biomimetic Activation of N-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 Invited	Li Li - Charles Sturt University - Engineering Biominerals 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 Invited	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 - Advanced Nano-platforms for Sensitive Biomolecule Detection	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 Invited	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 Invited	SangIlhn 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 Oral	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 Oral	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	PLENARY: Kate Schroder - The University of Queensland <i>Inflammasomes: from Fundamental Biology to New Therapeutics</i> CHAIR: Rona Chandrawati ROOM: Water@Pier One		
SESSION Chair Room	DRUG DELIVERY Nhiem Tran Water@Pier One	BIOMATERIALS & BIO-NANO INTERFACE Kristian Kempe Dawes Point 1&2	SENSORS & IMAGING Abu Sina Dawes Point 3&4
9:45 Keynote	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 Invited	Chaoliang Tan - City University of Hong Kong - Structural Engineering of Layered 2D Nanomaterials for Cancer Therapy	Jonathan Yeow - UNSW Sydney - Low Volume, High Throughput Polymer Syntheses for Accelerating Discovery of Novel Biomaterials	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 Chair Room	DRUG DELIVERY Li Li Water@Pier One	TISSUE ENGINEERING & MICROPHYSIOLOGICAL SYSTEMS Amy Gelmi Dawes Point 1&2	SENSORS & IMAGING Yuyang Gu Dawes Point 3&4
11:10 Invited	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 Invited	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 Invited	Andrew Care - The University of Technology Sydney - Strategies to Engineer Protein Nanocages for Nanomedical Applications	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 Oral	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	PLENARY: Maria José Alonso - University of Santiago de Compostela <i>How Nanotechnology Transforms the Delivery of Biological Drugs</i> CHAIR: Martina Stenzel ROOM: Water@Pier One		
SESSION Chair Room	POSTER SETUP Water@Pier One	CLINICAL CHALLENGES Ashish Diwan & Ben Kong Dawes Point 1&2	INDUSTRY SESSION Tushar Kumeria Dawes Point 3&4
2:15 Keynote/ Invited	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 Keynote/ Invited			Cong Vu - NanoSoils Bio Pty Ltd - Can My Nanomedicine be Useful for Other Things?
2:55 Keynote/ Invited		Anushka Patel - The George Institute for Global Health - Hypertension - the leading risk factor for disease burden globally	Nicolas Schuecker-Rush - Merck Life Sciences -
3:15	AFTERNOON TEA		
3:50	POSTER PRESENTATION COMPETITION - Water@Pier One Chair: Peter Wich		
5:00 - 6:00	POSTER SESSION - Water@Pier One		
6:00	POSTER PRIZE AWARDS ANNOUNCEMENT & PRESENTATION - Water@Pier One		
6:30- 9:30	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 four (4) 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 & Welcome Tea & Coffee		
9:00	PLENARY: Fabian Kiessling - University of Aachen Diagnostic Nanoparticles for Drug Delivery, Cell Tracking and Tissue Engineering CHAIR: Y. Shrike Zhang 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 System for Therapeutic Applications
10:35	MORNING TEA		
SESSION	DRUG DELIVERY	BIOMATERIALS & BIO-NANO INTERFACE	DRUG DELIVERY
Chair Room	Jonathan Yeow 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 - 3D Printing Strategies for Rapid Generation of Cellular Microenvironments
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	Kanwar Abhay Singh - UNSW Sydney - Atomic Vacancy Rich Molybdenum Disulfide Nanoparticles Stimulate Mitochondrial Biogenesis and Enhance Oxidative Phosphorylation	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		