



Bioengineering Symposium and 3D Biofabrication Workshop

6–7 November 2025 | **Programme**

Hosted by the Centre for Bioengineering and Translational Health Technologies, Dunedin node
Faculty of Dentistry, University of Otago

Presented by



Thursday 6 November
10am–6pm | Symposium

Friday 7 November
9am–2pm | Symposium
2–4pm | 3D Biofabrication Workshop

Hybrid meeting

Zoom link: <https://otago.zoom.us/j/95976408898?pwd=bBNLCrsgilHsmVq6fWFDFYpLZZjQkh.1>

Dunedin: Blue Lecture Theatre, Faculty of Dentistry, University of Otago

Christchurch: Rolleston Lecture Theatre, University of Otago Christchurch and Zoom link

Wellington and elsewhere: Zoom link



University
of Otago

ŌTĀKOU WHAKAIHU WAKA

Day 1: Thursday 6 November

Symposium sessions held in **Blue Lecture Theatre, Faculty of Dentistry**

Breaks and poster viewing in **Room G.04, Walsh Building, Faculty of Dentistry**

Time	Title	Presenter
10.00am - 10.30am Welcome and introduction session		
10.00am - 10.30am	Mihi whakatau Welcome Introduction to the Centre for Bioengineering and Translational Health Technologies	Emeritus Professor John Broughton Faculty of Dentistry, University of Otago Professor Greg Cook DVC (Research), University of Otago Professor Tim Woodfield Christchurch Regenerative Medicine and Tissue Engineering (CReaTE) Group, Department of Orthopaedic Surgery & Musculoskeletal Medicine, University of Otago Christchurch
10.30am - 12.30pm		
Session 1: Showcasing <i>Bioengineering @ Otago</i>		
Chair: Professor Azam Ali		Presentation format: 15 min + 5 min Q&A
10.30am - 10.50am	Focused ultrasound: opening a therapeutic window into the brain	Professor John Reynolds Department of Anatomy, University of Otago
10.50am - 11.10am	3D printing to engineer complex tissues	Professor John P. Fisher Fischell Department of Bioengineering, University of Maryland, College Park, MD, USA
11.10am - 11.30am	A novel targeted treatment using imiquimod for cervical intraepithelial neoplasia (ANTARTIC trial)	Dr Adel K. Mekhail Consultant OB/GYN and Senior Clinical Lecturer University of Otago Te Whatu Ora Health NZ Southern
11.30am - 11.50am	Cell-free synthetic nanoparticles incorporated bioscaffold for the treatment of diabetic ulcer	Professor Rajesh Katare Department of Physiology, University of Otago
11.50am - 12.10pm	From ultrasensitive to single-molecule sensor	Dr Yanfang Wu Department of Chemistry, University of Otago
12.10pm - 12.30pm	Nanoengineering of novel bone engineering constructs	Associate Professor Dawn Coates Faculty of Dentistry, University of Otago
12.30pm - 1.30pm Lunch break and poster viewing Poster titles and presenters are listed on page 5		
1.30pm - 2.00pm		
Session 2: MedTech research and funding landscape		
Chair: Professor Tim Woodfield		Presentation format: Interactive session
1.30pm - 2.00pm	Centre for Bioengineering & Translational Health Technologies Theme activities, updates and future opportunities Themes: Regenerative Medicine, Biomaterials, Point of Care, Imaging, Nanomedicine	Professor Tim Woodfield Professor Azam Ali Associate Professor Yusuf Cakmak Professor Anthony Butler Associate Professor Arlene McDowell

Time	Title	Presenter
2.00pm - 3.15pm		
Session 3: <i>Biomaterials Bioengineering@Otago</i> postgraduate student session		
Chairs: Associate Professor Jaydee Cabral and Dr Mina Rajabi		Presentation format: 12 min + 3 min Q&A
2.00pm - 2.15pm	Evaluation of antimicrobial peptide-based biomaterials targeting foodborne bacteria and biofilms	Meera Probha Kabiraz PhD candidate, Department of Microbiology & Immunology, University of Otago
2.15pm - 2.30pm	Hybrid-electrospun composite matrix for the regeneration of diseased heart	Jekham Saravanan PhD candidate, Department of Physiology, University of Otago
2.30pm - 2.45pm	Overcoming oxygen inhibition in digital light processing for high-fidelity fabrication of cell-laden tissue constructs	Melissa Ishii PhD candidate, CReaTE Group, Department of Orthopaedic Surgery & Musculoskeletal Medicine, University of Otago Christchurch
2.45pm - 3.00pm	Development of a novel triphasic bio-composite injectable hydrogel for dental pulp tissue <i>in vitro</i>	Franzine Ritzelle Santiago Catli MSc candidate, Bioengineering, Faculty of Dentistry, University of Otago
3.00pm - 3.15pm	Vascularising a thick, 3D-bioprinted nipple-areolar complex (NAC) by incorporating stem cells and a perfusable bioreactor system	Emma Managh MSc candidate, Bioengineering, Faculty of Dentistry, University of Otago

3.15pm - 3.35pm **Afternoon tea and poster viewing**

3.35pm - 4.45pm

Session 4: *Translational Bioengineering@Otago* + ECR + PhD session

Chairs: Associate Professor Yusuf Cakmak and Professor Rajesh Katare

Presentation format: 12 min + 3 min Q&A

3.35pm - 3.50pm	Modular spheroid models for <i>in vitro</i> evaluation of cartilage tissue integration across disease stages	Dr Laura Veenendaal ECR, CReaTE Group, Department of Orthopaedic Surgery & Musculoskeletal Medicine, University of Otago Christchurch
3.50pm - 4.05pm	Hydrogels in ophthalmology: Retinal therapy, biomaterials for drug delivery and tissue engineering	Dr Francesc March de Ribot Ophthalmology Consultant, Department of Medicine, University of Otago
4.05pm - 4.20pm	New Zealand seaweed – Sustainable materials for tissue engineering	Associate Professor Lyn Wise Department of Pharmacology & Toxicology, University of Otago
4.20pm - 4.35pm	The application of photodegradable bioinks to improve physiological relevance of 3D <i>in vitro</i> models	Dr Max Yavitt ECR, CReaTE Group, Department of Orthopaedic Surgery & Musculoskeletal Medicine, University of Otago Christchurch
4.35pm - 4.50pm	Drug and carrier transport to the inner ear	Dr Mina Rajabi ECR, Bioengineering, Faculty of Dentistry, University of Otago

4.50pm - 6.00pm **Posters and networking session**

Bioengineering information for undergraduate/postgraduate research students
Drinks and nibbles provided

Day 2: Friday 7 November

Time	Title	Presenter
9.00am - 9.30am Welcome back		
9.00am - 9.10am	Welcome and introduction	Professor Paul Cooper Dean, Faculty of Dentistry, University of Otago
9.10am - 9.30am	Protecting your innovations	Sam Wilkins Commercialisation Manager, Otago Innovation Ltd
9.30am - 10.50am Session 5: <i>Bioengineering@Otago</i> Translational Research Programmes session Chair: Professor Tim Woodfield Presentation format: 15 min + 5 min Q&A		
9.30am - 9.50am	Applied anatomy for MedTech	Associate Professor Yusuf Cakmak Department of Anatomy, University of Otago
9.50am - 10.10am	Innovations in tissue regeneration: 3D biofabrication and translational devices	Associate Professor Jaydee Cabral Bioengineering, Faculty of Dentistry, University of Otago
10.10am - 10.30am	A bovine-derived hydroxyapatite/chitosan bio-composite for cleft lip and palate repair	Dr Jithendra Ratnayake Faculty of Dentistry, University of Otago
10.30am - 10.50am	Developing extracellular vesicles as regenerative therapeutics in breast reconstruction	Associate Professor Kirsty Danielson Department of Surgery & Anaesthesia, University of Otago Wellington
10.50am - 11.10am Morning tea and poster viewing		
11.10am - 12.30pm Session 6: <i>MedTech</i> ecosystem and health advancement Chairs: Professor Tim Woodfield Presentation format: 15 min + 5 min Q&A		
11.10am - 11.30am	Bioengineering challenges in oral bone regeneration – preclinical testing	Professor Warwick Duncan Faculty of Dentistry, University of Otago
11.30pm - 11.50pm	The bridge between academic research and successful translation for impact	Mat Rowe Founding Partner, Outset Ventures, Auckland
11.50am - 12.10am	The little bacterium that could! The BLIS story- developing a bacterial strain as a new oral probiotic	Dr John Hale CTO (Science), Blis Technologies Ltd, Dunedin
12.10pm - 12.30pm	Developing tools for the delivery of therapies and diagnostic assessment of the cochlea	Professor Peter Thorne Departments of Physiology & Audiology, Faculty of Medical & Health Sciences, University of Auckland
12.30pm - 1.30pm Lunch break and poster viewing		
1.30pm - 2.00pm Symposium wrap-up and awards presentation Professor Paul Cooper, Professor Tim Woodfield, Professor Azam Ali, Associate Professor Jaydee Cabral		

Time	Title	Presenter
2.00pm - 3.00pm	3D Biofabrication workshop/training and laboratory tour Lead: Associate Professor Jaydee Cabral Small groups, 10 minute time slots (Not livestreamed)	
3.00pm - 4.00pm	Afternoon tea, general questions, close	

Research posters

Poster	Title	Presenter
#01	Self-crosslinked marine fish collagen for 3D printing soft tissue constructs	Alexandria Leonard PhD candidate, Marine Products, Plant & Food Research Group, Bioeconomy Science Institute, Nelson and Bioengineering, Faculty of Dentistry, University of Otago
#02	3D biofabrication of polylactic acid nerve conduit for sciatic nerve injury	Chris How-Ming Tan MSc candidate, Bioengineering, Faculty of Dentistry, University of Otago
#03	Increasing sports activity in children with limb difference	Maggie Swank MSc candidate, Bioengineering, Faculty of Dentistry, University of Otago
#04	Towards neurovascularised breast tissue constructs: plasma-modified PCL and PEDOT:PSS/collagen hybrid scaffolds	Caitlin O'Donnell MSc candidate, Bioengineering, Faculty of Dentistry, University of Otago
#05	Nanocellulose morphology impacts the mechanical and biological properties of composite gelatine hydrogel scaffolds	Janet Reid PhD candidate, Department of Pharmacology & Toxicology, University of Otago
#06	Tracking extracellular matrix evolution during 3D microtissue formation and fusion using click chemistry-based metabolic labelling	Theresa Konig PhD candidate, CReaTE Group, Department of Orthopaedic Surgery & Musculoskeletal Medicine, University of Otago Christchurch
#07	Comparative evaluation of tDodSNO drug delivery systems	Lipika Prasad PhD candidate, Department of Pharmacology & Toxicology, University of Otago
#08	Human mesenchymal stromal cell derived extracellular vesicles improve cartilage tissue formation and integration in a novel 3D spheroid fusion model	Poppy Buissink PhD candidate, CReaTE Group, Department of Orthopaedic Surgery & Musculoskeletal Medicine, University of Otago Christchurch
#09	Controlled hydrogel degradation to facilitate intestinal organoid fusion	Calum McFetridge PhD candidate, CReaTE Group, Department of Orthopaedic Surgery & Musculoskeletal Medicine, University of Otago Christchurch
#10	Rapid release of antimicrobial nanospheres for oral delivery	Charlie Danson MSc candidate, Faculty of Dentistry, University of Otago