

QRW Programme

Stem Cells & Regenerative Medicine Satellite Day 1

28 August – 29 August, 2016

Rutherford Hotel, Nelson, New Zealand

Professor Richard Oreffo



Biography: Prof. Richard Oreffo holds the chair of Musculoskeletal Science and is co-founder and current Director of the Centre for Human Development, Stem Cells and Regeneration at Southampton. He has held positions at AstraZeneca, and University of Oxford before being appointed to a lectureship in 1999 at the University of Southampton. Richard is internationally recognised for his work on skeletal biology and the mechanisms involved in skeletal stem cell differentiation and bone regeneration. Richard leads a multidisciplinary research group focused on developing strategies to repair bone & cartilage with translation through to patient benefit in addition to understanding bone development; including the role of epigenetics in musculoskeletal diseases. Richard has published over 240 peer-reviewed full papers (~10,000 citations; H index 52), holds a number of visiting professorships, is on the editorial boards of five journals, was awarded a DSc from the University of Oxford in 2015 and is a Fellow of the Royal Society of Biology.

Professor Wayne McIlwraith



Biography: Dr. McIlwraith obtained his veterinary degree from Massey University, New Zealand in 1971, and was in practice in Darfield, New Zealand for two years and the UK followed by an internship at the University of Guelph, Canada, surgical residency at Purdue University and obtained MS and PhD degrees from Purdue University. Since 1979 he has been a faculty member at Colorado State University. Currently he is a University Distinguished Professor, holds the Barbara Cox Anthony University Endowed Chair in Orthopaedics and is founding Director of the Orthopaedic Research Center and the Musculoskeletal Research

Program at Colorado State University. He also has a referral surgical practice in Southern California and consults elsewhere in the US and also internationally. He is a recognized leader in the fields of equine orthopaedic surgery and research. He is a Diplomate of the American College of Veterinary Surgeons, the American College of Veterinary Sports Medicine and Rehabilitation and the European College of Veterinary Surgeons as well as a Fellow of the Royal College of Veterinary Surgeons (UK). He is a Past President of AAEP, ACVS and The Veterinary Orthopaedic Society.

His research interests focus on equine orthopaedic surgery and joint disease research including novel treatments for osteoarthritis and articular cartilage repair, mesenchymal stem cell therapies and early diagnosis of osteoarthritis and pre-fracture disease using imaging and fluid biomarkers. He has authored six textbooks, 450 scientific publications and textbook chapters and given over 650 scientific presentations, seminars and workshops.

He has received multiple honors nationally and internationally including most recently the Markowitz Award from the Academy of Surgical Research 2013 and the Marshall R. Urist MD Award for Excellence in Tissue Regeneration Research from the Orthopaedic Research Society 2014.

Associate Professor Tim Woodfield



Biography: Associate Professor Tim Woodfield leads the Christchurch Regenerative Medicine and Tissue Engineering (CReaTE) Group in the Department of Orthopaedic Surgery and Centre for Bioengineering & Nanomedicine at the University of Otago Christchurch, New Zealand. He obtained an MASc from University of Toronto, Canada (2000) followed by a PhD degree (2004) and postdoc (2005) from the University of Twente, The Netherlands. His team are investigating stem cell and biomaterial-based strategies for high-throughput screening and musculoskeletal tissue regeneration, focussing on Additive Manufacturing, 3D Bioprinting and biomaterial/bio-ink technology platforms.

He was awarded a prestigious Rutherford Discovery Fellowship by the Royal Society of New Zealand in 2012 focussing on Regenerative Medicine of cartilage and bone, and is a Principal Investigator within the New Zealand Medical Technology Centre of Research Excellence (MedTech CoRE). He also holds an adjunct Assoc Professor position at the Institute of Health & Biomedical Innovation, Queensland University of Technology, Australia.

He is outgoing President of the Australasian Society for Biomaterials & Tissue Engineering (ASBTE) and served on its Executive Committee since 2008. He sits on the editorial board for 3 journals including Biofabrication and Frontiers in Bioengineering & Biotechnology, and is currently Secretary and Executive Board member of the International Society for Biofabrication (ISBF).

Professor Jillian Cornish



Biography: Jill leads the Cell and Molecular Bone/Joint Biology Research Group in Department of Medicine, University of Auckland, New Zealand. Jill's group investigates peptides and lipids that are anabolic to bone cells, cartilage and tendon cells for which they hold international patents. The group has established numerous in vitro and in vivo models in skeletal biology and developed a keen interest in skeletal regenerative medicine. Jill is on the boards of the International Bone and Mineral Society, International Bone Morphometry Society and is a past-president of Australian and New Zealand Bone and Mineral Society.

Professor Xuebin Yang



Biography: Prof. Xuebin Yang, the head of tissue engineering research at School of Dentistry, University of Leeds, UK, is also a 'Concurrent Professor' in Nanjing University, China (2009-), 'Invited Professor' in Tokyo Women's Medical University, Japan (2011-) and 'Honorary Professor' in School of Medicine, Henan University of Science and Technology, China (2012-). His research profile combines 12 years' expertise in clinical orthopaedics with highly specialised research expertises (Since 1999) in skeletal tissue engineering using stem cell therapy, biomimetic biomaterials and *in vitro*, *in vivo* models. Originally a orthopaedic surgeon, XY completed his primary medical education in 1984. Subsequently, he was awarded an MSc degree in hand and microsurgery (1992, Fudan University) and a PhD degree in bone tissue engineering (2002, University of Southampton). XY currently lead a team of 12 PhD students and 1 fellow who are working on stem cell therapy and skeletal tissue engineering in regenerative medicine and dentistry. XY holds a Home Office Project License for 8 different *in vivo* models for pre-clinical testing of the efficacy of stem cell therapy and/or biomaterial scaffolds. He plays a key role in the University's major tissue engineering and regenerative medicine research programmes (WELMEC, CDT, LMBRU and Regener8). He developed and provide leadership (PIs) for six international consortia which include partners in USA, Japan, New Zealand, China, Australia and EU countries. XY has been the Honorary Treasurer and Trustee of the British Orthopaedic Research Society, the vice-president of the Luoyang Hand Surgery Society, a member of the scientific committees for many prestigious conferences, grant review panels (e.g. FP7, Horizon 2020, NSFC) and editorial board for professional journals.

Professor Yin Xiao



Biography: Professor Yin Xiao is an experienced bone biology scientist and Chair of the Bone and Tissue Engineering program at the Institute of Health and Biomedical Innovation at Queensland University of Technology. Professor Xiao is also the director of Australia-China Centre for Tissue Engineering and Regenerative Medicine (ACCTERM). He has developed an active research program that focuses on finding solutions to bone defect healing, bone regeneration, stem cell selection and the treatment of osteoarthritis. Spanning the fields of stem cell biology, tissue engineering, bone biology, dentistry and osteoarthritis, he has authored more than 160 peer-reviewed journal papers, two books, sixteen book chapters, and four patents since 2005.

Professor Nuno Alves



Biography: Dr. Nuno Alves completed his Ph.D. in Mechanical Engineering - Computer Vision working at Technical University of Lisbon. He is currently Director of the Centre for Rapid and Sustainable Product Development of the Polytechnic Institute of Leiria (CDRsp-IPLeia) a leader in the development of direct digital manufacturing mainly in the application of such technology to medicine. He has co-edited 8 books, published 7 patents, authored and co-authored more than 90 papers published in books, international journals and international conferences. He is the President of the

Scientific Council of the CDRsp-IPLeia Research Centre, President of the International Conference on Direct Digital Manufacturing and Polymers, Chairman of the International Workshop on Nanoscale Direct Digital Manufacturing, International Workshop on Applications of Direct Digital Manufacturing to Medicine, and Symposium on Integrated Computational Tools for Advanced Manufacturing, held within International Conference of Numerical Analysis and Applied Mathematics. Nuno Alves is/was Member of the Research Teams of 24 Funded Research Projects (4 as Principal Investigator)

Dr Jelena Rnjak-Kovacina



Biography: Jelena Rnjak-Kovacina is a Lecturer at the Graduate School of Biomedical Engineering at UNSW Australia. Her research interests are at the interface of biology and engineering, focusing on the development of novel, biomimetic biomaterial platforms with tuneable physical and biological features that direct cellular behaviour and function. In particular, she focuses on engineering the vascular niche and developing next generation vascular materials. She completed her doctoral degree in Prof. Anthony Weiss' lab at the University of Sydney, studying synthetic human elastin as a biomaterial for skin tissue engineering. Her postdoctoral research in David Kaplan's group at Tufts University in Boston focused on novel biomaterials developed from silk fibroin to address a number of current clinically unmet needs, including bioengineering of skeletal muscle and cornea and tackling the issue of vascularisation in critically-sized tissue engineered constructs.

Dr Vitor M Correlo



Biography: Vitor M. Correlo has a PhD in Materials Science and Technology from the University of Minho, Portugal. Part of his PhD work was developed at the University of Minnesota, USA. His actual main research topics include: i) application of micro and nano fabrication methods to generate high-precision scaffolds for engineering multi-component structures; ii) cell printing, iii) tailoring hydrogel properties by incorporating bioactive agents and/or electroactive materials aiming to

tailor the cellular fate; iv) electrical stimulation of stem cells and v) implantable biosensors. As result of his research efforts within the field of Tissue Engineering and Regenerative Medicine, presently he is author or co-author of more than 69 ISI listed publications, 43 full papers in scientific journals, 7 international book chapters and more than 80 communications (as oral/poster presenter) in international meetings. He is also co-author of 3 patent. His work has been cited around 831 times and he has an h-factor of 15.

Dr Khoon Lim



Biography: Dr Khoon Lim has a BE (Hons1) in Chemical Engineering and both ME, PhD in Biomedical Engineering from the University of New South Wales, Australia. He has won several prestigious awards such as the UNSW Dean's Award in Postgraduate Research and IEEE Technologies of the Future Competition. He is currently a Research Fellow in the Christchurch Regenerative Medicine and Tissue Engineering (CReATE) Group, New Zealand. His research activity focuses on using soft biomaterials (hydrogels) to deliver instructive elements that are capable of signalling

cells down a pathway of tissue organization and formation. This specific research will help bridge the gap between materials and science, improve the current tissue regeneration technology and solve the current problems faced with organ donation not only in NZ but worldwide. His research projects also involve several collaborations in Netherlands, Portugal, UK and Australia. He has authored several publications in most prestigious journals in Tissue Engineering and Regenerative Medicine field.

Dr Cameron Brown



Biography: Dr Cameron Brown undertook his PhD at QUT, Australia, receiving the University's Outstanding Thesis prize for 2008 for his work developing characterisation techniques for cartilage and bone. He then joined the Italy-Québec Joint Laboratory in Nanostructured Materials for Energy, Catalysis and Biomedical Applications at Università di Roma II and INRS, Université du Québec. As a FRSQ Fellow, he led an investigation into spider silk nanomechanics, particularly toughening mechanisms related to protein-water interactions, protein distribution and fibril interactions. In addition to its outstanding

mechanical properties, the green chemistry and scalability of spider silk synthesis provide an excellent biomimetic target for the development of biomaterials and high performance fibre-based materials. In 2010 Dr Brown moved to the University of Oxford to study the structure-function relationships in musculoskeletal tissues, and currently heads the Photonics, Mechanics and Modelling of Biomedical Materials Group at the Botnar Research Centre. While focussed on musculoskeletal tissues, diseases and treatments, the group is actively engaged in studying and translating structure-function relationships in high-performance biological materials including spider silk, ivory and wood. Dr Brown is the Oxford lead for the Marie Curie skelGEN Project, the image analysis lead for the 7-Tesla MSK imaging programme, and the Co-Director (engineering lead) for the Arthritis Research UK Experimental Osteoarthritis Treatment Centre.