

Foodomics 2019

Growing the science to take high-value foods to the world

9-11 APRIL

National
SCIENCE
Challenges

HIGH-VALUE
NUTRITION

Ko Ngā Kai
Whai Painga

Tuesday 9 April, Wednesday 10 April, Thursday 11 April, Cordis Hotel, Auckland

High-Value Nutrition National Science Challenge thanks our keynote speakers, presenters and expert panellists and chairs for sharing their expertise and insight. The programme aims to convey the breadth and depth of the high-value food eco-system in New Zealand. The chief outcome we want from Foodomics 2019, our major conference for the year, is to bring together a high-calibre, engaged group of researchers, business people and international speakers to collaborate, support and share how New Zealand can lift the export revenue the country earns from high-value foods that people choose to maintain health and wellbeing.

Brief biographical notes on our keynotes, presenters, and expert panellists and chairs

Keynote speakers	
<p>Professor Rob Knight, UC San Diego Rob is the founding Director of the Center for Microbiome Innovation and Professor of Pediatrics and Computer Science & Engineering at UC San Diego. His lab has produced many of the software tools and laboratory techniques that enabled high-throughput microbiome science, including the QIIME pipeline and UniFrac. He is co-founder of the Earth Microbiome Project, the American Gut Project, and the company Biota, Inc.</p>	
<p>Julian Mellentin, New Nutrition Business Julian is one of the world's few international specialists in the business of food, nutrition and health. He is the founder of New Nutrition Business. He has provided consultancy advice to global food companies, from Fonterra to Nestle.</p>	
<p>Professor Nicholas Talley, University of Newcastle Nick is the Pro-Vice-Chancellor of Global Research at the University of Newcastle. A leading figure in gastroenterological research, he was recognised as Australia's most cited researcher by Google Scholar in 2017.</p>	
<p>Dr Jim Kaput, Vydiant Inc Jim is known as the father of the Systems Nutrition approach and an expert on personalised nutrition. A distinguished research scientist, he is the co-founder of Vydiant Inc, a health care data analytics firm and has previously been the Director of Personalised Nutrition and Medicine at the FDA's National Center for Toxicological Research.</p>	
Presenters	
<p>Juliet Ansell, Innovation Manager, Zespri International Ltd Juliet oversees research platforms across Zespri's value chain. Prior to her role at Zespri, Juliet has been an academic research scientist with senior roles at the CSIRO, Australia and Plant and Food in New Zealand. For Plant and</p>	

<p>Food, she led major research programmes with government and industry support involving <i>in vitro</i>, <i>in vivo</i> and human clinical trial work.</p>	
<p>Matthew Barnett, Senior scientist, AgResearch Matthew’s research has focussed on the importance of nutrition for health throughout life. He was part of the Nutrigenomics New Zealand collaboration from 2004-2014, working on understanding how diet and genome interact to influence health with a particular focus on intestinal function. While the primary focus of these projects remains intestinal health, other aspects of human health, including cognition and mobility, are increasingly of interest.</p>	
<p>Emma Bermingham, Senior scientist, AgResearch Emma is interested in adding value to the New Zealand meat industry via understanding the health benefits of red meat for our pets and for humans. For the Challenge she has worked closely on the research project Complex lipids for enhanced metabolic health, which is investigating the cholesterol lowering properties of grass-fed New Zealand wagyu beef. Emma has held roles with the CSIRO, Australia, INRA, France and the Waltham Centre for Pet Nutrition.</p>	
<p>Peter Brown, Research Innovation Manager, Goodman Fielder Peter manages the innovation process from a science/technology point of view and works closely with the marketing team to help the business to deliver food and beverage innovation to market. Peter has an IP background, having been a patent attorney specialising in food and biotech innovation sector for over eight years. This, together with a PhD in protein biochemistry, also comes in handy when assessing the commercial application of new science and technology, the strength of IP rights possibly on offer, and freedom to operate issues.</p>	

Denise Conroy, Senior Scientist, Plant and Food Research

As a consumer behaviour researcher, Denise is particularly interested in identity and how our sense of self shapes our consumption choices, how we allocate and spend our resources, and where we choose to focus our attention. She uses interpretivist techniques in her own research, and is currently adopting a multimodal approach in her analysis. Denise has an extensive business background in advertising and public relations means she is also very interested in application.



Lynley Drummond, Riddet Institute

With over 30 years experience in the food and dairy industries and in academic institutions, Lynley's key focus is the strategic development and commercialisation of formulated complex nutritional foods, and the strategic planning, management and execution of food and health research for commercial entities. Lynley's expertise provides the bridge between science, commercialisation and working within an increasingly rigid regulatory environment.



Meika Foster, Edible Research founding director

Meika is a nutritional biochemist with a background in law. Her consultancy, Edible Research Ltd, provides translational research services to the food industry, research institutions and the Government. For the Challenge she leads work to implement Vision Mātauranga in Challenge science and innovation programs for the benefit of New Zealanders. Meika is conversant with the principles of the Treaty of Waitangi and tikanga Māori. As a result of her various multi-disciplinary roles, Meika has significant experience in stakeholder relations, project evaluation; and laboratory, clinical, commercial, and public health research.



Karl Fraser, Senior Scientist, AgResearch

Karl has worked in metabolomics at AgResearch since 2005 and conducted a wide variety of metabolomics experiments across the whole forage based agricultural value-chain; from soil, to plants, to meat and milk, the metabolic consequences of consuming these products,



<p>and more recently, biomarker discovery in the area of human health and nutrition. His current research focuses on the application of both targeted analytical chemistry and untargeted metabolomics on an array of human samples (breast milk, plasma, urine, saliva, adipose and muscle tissue, breath) for the Challenge, and the integration of this data to understanding biochemical systems.</p>	
<p>Olivier Gasser, Team leader, Malaghan Institute of Medical Research Olivier leads the Challenge Immune Health research programme. His research interests lie in the bi-directional communication between the immune system and host metabolism, with a strong emphasis on the gut and its resident microbes. He brings much experience in evaluating novel mechanistic aspects of the human immune system that could provide immediate impact to the fields of immune health as it relates to cancer, inflammatory and infectious diseases.</p>	
<p>Adrian Grey, Business and Produce Development Manager, Sanford Ltd Adrian leads the Business Management Team for the mussel business at Sanford. This team plans and manages the strategic direction of Sanford’s mussel business which includes new product and channel development – finding additional value for the green-shell mussel.</p>	
<p>Roger Harker, Plant & Food Research Roger leads the Consumer Insights research platform for the Challenge. He is renowned for his expertise in predictors of consumers’ perceptions, preferences and purchasing preferences. He focuses on measurements that relate to human perception of texture taste and odour, and consumer beliefs attitudes and perceptions that influence food choices. His research over the past decade has supported major changes in the food industry.</p>	
<p>Gerard Hickey, Managing Director, First Light Foods Gerard has led First Light Foods for more than 10 years, bringing his knowledge and skills in business strategy and innovation, consumer preferences, marketing and sales, value chain structures, and product development. He has a</p>	

<p>background in the New Zealand animal agricultural sector with a focus on promoting the provenance of premium grass-fed beef and lamb and developing sustainable pasture to plate processes.</p>	
<p>Simon Loveday, Senior Scientist, AgResearch Simon is also an Associate Investigator at the Riddet Institute Centre of Research Excellence and Principal Investigator for the High Value Nutrition National Science Challenge MultiProMo project. Simon’s research explores how molecular interactions in foods drive micro-/meso-structure, physico-chemistry and bio-functionality, with a focus on emerging food protein sources.</p>	
<p>Louise Weiwei Lu, Research Fellow, School of Biological Sciences, University of Auckland Louise is a researcher on the Peak Nutrition for Metabolic Health project for the Challenge. She is also a lead researcher on the Tū Ora project with the NUKU ki te Puku business cluster, helping to create an exemplar of how small to medium enterprises can apply research to innovate new high-value foods for health and well-being.</p>	
<p>Bob Major, Chair, High-Value Nutrition Board Bob, one of New Zealand’s leading business leaders in the dairy industry and beyond, is the chair of the Board of High-Value Nutrition. After graduating from Massey University with an MSc he held various senior positions with the NZ Dairy Research Institute, the NZ Dairy Board and Fonterra Co-operative Group, in the Middle East, Asia and New Zealand. He has been a director on several New Zealand industry-good organisations and Fonterra subsidiaries and joint ventures in Europe and Asia. Mr Major is currently a director of KiwiRail, Sealord Group, Barker Fruit Processors Ltd, Westland Co-operative Dairy Company and BioVittoria Limited.</p>	

Dr Matt Miller, Cawthron Institute

Matt applies his expertise in marine oils and natural product chemistry to provide practical solutions for innovative companies that Cawthron collaborates with. Matt is highly skilled in techniques such as gas chromatography–mass spectrometry, latroscan, thin layer chromatography – flame ionised detection, high performance liquid chromatography–mass spectrometry, and many other spectroscopy techniques. He has led the research project *Musselling Up*, funded by the Challenge in partnership with Sanford Ltd.



Professor Richard Mithen, Chief Scientist, High-Value Nutrition

Richard is the Professor of Human Nutrition at the Liggins Institute of the University of Auckland and Chief Scientist for the New Zealand High Value Nutrition National Challenge. Richard has played a major role in the development of the Quadram Institute, a new institute on the Norwich Research Park that combines food and nutritional science with human microbiome research and clinical expertise. Richard’s major research interests are at the interface between crop and food science and human nutrition.



Dr John Monro, Principal Scientist, Plant and Food Research

John has studied dietary fibre in the fore and hind gut, physiologically valid determination of its functional properties, and how to communicate its effects to accurately guide food choices for health. More recently his research has focused on digestible carbohydrates in foods, on valid determination of carbohydrate availability by *in vitro* digestive analysis, and on food structural factors that modulate the glycaemic response. John is a lead researcher on the postprandial and long term clinical trials for the *Kiwi, Fruity and Friendly* research project funded by High-Value Nutrition and Zespri Ltd.



Sally Poppitt, Professor of Human Nutrition, University of Auckland

A member of the Challenge Science Leadership Team, Sally is founding director of the University's Human Nutrition Unit. She leads the Challenge Metabolic Health programme – researching how food can help problems of obesity and its related diseases, type 2 diabetes and cardiovascular health. Sally's research expertise is on the prevention and treatment of conditions arising from poor nutrition including overweight and obesity, metabolic dysregulation and diabetic and cardiovascular risk. She has extensive experience in conducting nutrition intervention trials in both developed and developing countries. She has acted as consultant to the Government advisory panels and the New Zealand food industry.



Nicole Roy, Principal Scientist and Science Team Leader at AgResearch

Nicole heads the Challenge Digestive Health programme. From her base in Palmerston North she and her team are working to unlock the science of how food affects gastrointestinal health. At AgResearch, Nicole led complex studies of amino acid metabolism in key tissues in lactating ruminants and in growing lambs affected by internal parasites. Nicole is also an Adjunct Associate Professor Senior Lecturer at the Riddet Institute.



Ivana Sequeira, Research Fellow, School of Biological Sciences, University of Auckland

Ivana is one of the lead researchers on the Peak Nutrition for Metabolic Health project in the Challenge's Metabolic Health research programme. The project is investigating the susceptibility of the 'at risk' population to diabetes and to study the association and risk related to storage of ectopic body fat. The long term goal being to identify nutrition interventions to prevent dysglycaemia and type 2 diabetes.



Odette Shaw, Plant & Food Research

Odette is a scientist in the Food & Wellness Group of the New Zealand Institute for Plant & Food Research Limited. Her research has focussed on inflammation in lung disease. As part of her research Odette has developed an interest in the ability of plant phytochemicals to alter the innate immune system's response to allergens and the effects on tissue repair mechanisms, particularly the ability to ameliorate fibrosis.



Harjinder Singh, Director, Riddet Institute, Massey University

Harjinder is a world renowned food scientist and leader of the Science of Food research at High-Value Nutrition. His own research has focused on food colloids, food ingredient functionality, functional foods and food structure-nutrition interface. He has published over 300 research papers in international journals, and is co-inventor of 12 patents which have formed the basis of several commercial innovations. His international standing and outstanding contributions to food science has been recognized by a string of national and international awards, including the Prime Minister's Science Prize.



Miriana Stephens, Director, Wakatū Inc

Miriana is a Director on the Whenua Board, the Wawata Board and is a member of the Audit & Risk Committee. Her qualifications include a Bachelor of Arts in New Zealand History and a Law Degree, majoring in Commercial Law. Miriana holds external directorships in a public and private capacity. Miriana was born and raised in Motueka and is of Ngāti Rārua, Ngāiterangi and Ngāti Ranginui descent.



Gerald Tannock, Microbiology and Immunology, University of Otago

Gerald's research has focussed on how the members of the microbiota live in the gut, and the consequences to the host of this life-long association with these bacteria. He leads the research into *A good night's sleep*, the research project looking at how slowly digested dietary fibre in foods might help infants sleep through the night".



<p>Joanne Todd, Challenge Director</p> <p>Joanne leads the Challenge management team. Before joining the Challenge, she worked for Fonterra Co-operative Ltd, where she held several nutrition and management roles with a focus on combining business development, science, regulatory and marketing activities, with an emphasis on Asian export markets. She has led and developed globally based cross-functional teams to deliver on a portfolio of projects, and has built consumer insight, clinical research and product development programmes that have delivered successful commercial outcomes.</p>	
<p>Clare Wall, Head of Nutrition Department, Faculty of Medical and Health Sciences, University of Auckland</p> <p>Clare is the principal investigator of the Infant Health programme. Her research interest is in the inter-relationships between the determinants of nutritional status and health outcomes of the paediatric population.</p>	
<p>Dr Wayne Young, Senior Scientist, AgResearch</p> <p>Wayne’s primary research interest is studying the complex interactions that occur between the host and resident microbial communities in response to food and food components. He works closely with the Challenge Digestive Health team.</p>	
<p>Expert panellists and chairs</p>	
<p>Mike Arand, China Business Development Advisor, NZTE</p> <p>Mike has had long and proven experience of identifying global business opportunities and creating and implementing strategies to take advantage of those opportunities. He has developed and managed global omni-channel businesses and created and led change and improvement. He has grown and developed companies in a career spanning over 20 years and in over 40 countries around the globe. Mike spent four years as Trade Commissioner in Shanghai for New Zealand Trade and Enterprise.</p>	

Craig Armstrong, Director (Customers) NZTE
 Craig is a member of the leadership group at New Zealand Trade & Enterprise, whose role it is to help New Zealand businesses grow into international markets. He has global Board and Executive experience with Lion Nathan, Cadbury Schweppes, Hunterskil Howard, CPLG, National Foods and HJ Heinz. In addition to being an Independent Director and Advisor, he has founded and since exited businesses in food/natural products and agri-tech.



Phil Bremer, New Zealand China Food Protection Network, University of Otago
 Phil applies a multi-disciplinary approach involving microbiology, chemistry, sensory science and product development, to gain an understanding of how factors such as raw material selection, product formulation, processing steps, packaging design, storage conditions, sanitation regimes (particularly to control biofilms) and product form impact on a food's safety, stability (shelf-life), quality (taste, appearance, texture), reputation (consumer perception) and ultimately its value in the market place.



Johnathan Chen, James and Wells
 Johnathan is the head of the Asia Division at James and Wells, the team providing specialist intellectual property and business advice to New Zealanders wanting to do business in Asia and vice versa. He has assisted many businesses from Asia to device and implement intellectual property protection strategies throughout Australasia and the Pacific. Johnathan has a strong working knowledge of conducting business in Asia and New Zealand.



Hongzhi Gao, School of Marketing and International Business, Victoria University
 Before coming to New Zealand, Dr Gao was as a chief analyst of foreign loans and risk management for Jilin Provincial Government in China. Hongzhi also holds a senior research fellow position at the New Zealand Contemporary China Research Centre, a multi-university program. Dr Gao has devoted the last ten years to researching New Zealand firms'



<p>marketing and business strategies in China. He has provided consulting service and academic advice for many New Zealand firms with regard to China, including New Zealand Post, Ata Rangī and Obiqo.</p>	
<p>Kevin Marshall, Director cDNAk</p> <p>Kevin chairs the Challenge Industry Advisory Group, providing a commercial perspective to Challenge research. He is a biotechnologist and chemical engineer, who has had a distinguished career in a range of industries including dairy, fruit, meat and seafood. He brings with him a wealth of expertise, from previous roles as managing director of ViaLactia Biosciences Ltd, Group Director R&D of the New Zealand Dairy Board and Chief Executive of the New Zealand Dairy Research Institute (now Fonterra Research Centre). He is chair of the Riddet Institute and the NZ Food Safety Science and Research Centre.</p>	
<p>Miranda Miroso, New Zealand Food Safety Science & Research Centre, University of Otago</p> <p>Miranda is the director of the Consumer Food Science Programme at the University of Otago. She has been principal investigator for research on how Chinese consumers perceive risk and how to communicate risk.</p>	
<p>Wayne Mulligan, CEO Fomana Capital</p> <p>Wayne is Te Ātiawa-Taranaki Whanui, Taranaki iwi, Ngati Maniapoto and is an innovative leader with 25 year's experience creating high-value technology companies, building access to export markets and building Māori enterprise. Wayne completed the Stanford University Executive programme in design thinking and the Agri-Technology Harvard Business Case Study programme. Fomana Capital has interest in nutraceutical and pharmaceutical businesses and is a major business in the Māori economy.</p>	

Peter Rowe, Treasury

Peter heads up the Business Origination team at the New Zealand Export Credit (NZEC), which is a unit within the Treasury. Peter and his team work with NZ exporters, banks as well as government agencies to support and grow NZ exports. NZEC's Trade Credit Insurance and Financial Guarantee products may assist with protecting payment risk and funding new growth opportunities. Prior to joining the NZEC team, Peter spent the previous 10 years in banking working for banks in New Zealand as well as Sumitomo Mitsui Banking Corporation in London, with a focus on project and export finance transactions.



Mark Tanner, Managing Director, China Skinny

As a leader for Shanghai-based marketing services business China Skinny, Mark Tanner has provided advice on China market growth strategies and research to over 150 brands including Colgate, Tourism Australia, Business Finland, Reckitt Benckiser, Ikea, SAIC Motors, Sun-Maid Raisins and a host of New Zealand brands from Fonterra to small family-run businesses. His views on China have been quoted by over 200 international media including Bloomberg, Reuters, FT and Forbes where he is a columnist. He authors the most-read newsletter about marketing to China.



Rodney Wong, Director, High-Value Nutrition

Rodney, an independent member of the Challenge Board, is a stalwart of the New Zealand food industry, with over twenty five years' experience across the FMCG sectors. With an initial background in biochemistry, he was CEO of National Foods for over 12 years – and more recently held governance roles across diverse industry sectors e.g. Noske Kaeser NZ Ltd; WMC Technology; Scanpower Ltd and Lowe.

