
Riddet Review

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Co-director made Distinguished Professor

Riddet Institute co-director Professor Harjinder Singh has been awarded the title of Distinguished Professor by Massey University and had the honour conferred during the university's graduation ceremonies in Palmerston North in May. This honour is in recognition of his outstanding scientific achievements, his international profile and his demonstrated academic leadership and commitment to Massey University and the wider scientific community.

Distinguished Professor Singh received his PhD in Food Science and Technology from University College Cork, Ireland in 1986, and has been with Massey University since 1989. He is a Fellow of the Royal Society of New Zealand and a Fellow of the International Academy of Food Science and Technology, and has received a number of international awards, including the Marschall Rhodia International Dairy Science Award, the William C. Haines Dairy Science Award (USA), the JC Andrews Award, and the Shorland Medal (New Zealand). In 2012, he was the co-recipient of the Prime Minister's Science Prize, the most prestigious science honour in New Zealand.

His present research is in dairy science and technology, functional foods, food structures and nutrition, and food processing techniques. He has published over 300 research papers in international journals, 10 patents and supervised many PhD students and postdoctoral researchers. He has presented over 60 keynote addresses at national and international conferences and has served on several editorial boards and international committees and consulting programmes with multi-national food companies.



Editorial



In this issue we focus on our interns and students, who bring energy to the Institute and confirm that science is truly an international affair.

Over the years we have welcomed up to 15 interns annually from around the world. Their stay is usually for six months while they work on a project with us that has relevance both to the Institute and also to their course of study at their home institutions. We feature some of these interns who have decided to go a step further after their sojourn and take up a degree here in New Zealand under our supervision.

Most of our students are nearing completion of their studies. We ask them about their plans for the future, as armed with their PhDs they look to new challenges in the world. Most of our students come from other countries to study with us in New Zealand. We ask them why they chose the Riddet Institute and what they find most unique about the New Zealand way of life.

With the rebid for Centre of Research Excellence approaching, we are both looking back at our successes and planning for the future. Our interns, students and young scientists have been a highlight of our work and they represent future connections for the Institute as they move into the global food industry and international research organisations. Importantly, they are the lifeblood of future innovation in foods.

Paula McCool, Communications Officer

Austrian student enamoured with New Zealand

Natascha Ströbinger arrived at the Riddet Institute on an internship at the end of 2009. She is now close to finishing the experimental work for her PhD and considering what the future will hold.

Ms Ströbinger attended Vienna University, where she obtained her Master's degree in nutritional science, and not long afterwards took the opportunity to begin a one-year internship at the Riddet Institute.

Her initial work was seeing what effect kiwifruit had on the production of mucin in the gut; and looking at the differences in digestion of white and brown rice. But she soon developed an interest in the ability of different minerals to bind to fatty acids.

Typical western diets contain up to 33% of their energy as fat and fat digestion begins in the stomach, although the bulk of digestion occurs in the small intestine. Diets high in calcium have been found to increase fat excretion in the faeces in animals as well as in humans. Ms Ströbinger thinks this could be due to the formation of insoluble soaps of dietary calcium and fatty acids, which are unable to be absorbed by the gastrointestinal tract. As well, the fatty acid chain length and degree of saturation may impact fatty acid absorption via the solubility of soaps.

Ms Ströbinger said, "There has been a lot of work done already on calcium and how it influences the absorption of fat and in particular whether it can stop saturated fat

from being absorbed. But also of interest to me were the effects of other trace elements, like zinc, iron, magnesium and copper. Although only smaller amounts are ingested, they are important and I was curious to find out whether highly saturated fats would impede the absorption of these trace elements."

Charlotte Bariaud from AgroParisTech in France has been given an internship at the Institute to assist Ms Ströbinger to finish the very detailed experiments. She has nearly completed six months on the project, mixing cations with fatty acids and testing reactions. Ms Bariaud is planning a further degree in Food Innovation and Product Design in Europe and is awaiting the result of her application. The degree will involve a semester each in Paris in Food Technology; in Dublin for business studies; and Naples for health studies.

"I was keen to come to New Zealand, as it is a popular destination at the moment with French people, but in particular, I must confess that my partner wanted to come to play rugby. So we are happy all round," she said.

When both women were asked about New Zealand food there was a flurry of comment. Ms Ströbinger says she has 'discovered' cider

(which isn't that popular in Austria) and says, "I love the wide range including berry, passion fruit and even feijoa cider, next to the more common ones, apple and pear cider. On my last trip home I brought three bottles of cider with me, which took up most of the weight allowance of my luggage. I also took some avocados home to impress my Mum and friends with the size and taste of them. The avocados imported to Austria are small hard little things (never ripe) and look pathetic next to a ripe fat New Zealand avocado, but you pay at least triple the price.

"I would also like to take home feijoas. My parents and friends have never seen one before."

On a less enthusiastic note, Ms Ströbinger says she was shocked upon her arrival in Palmerston North to see how many fast food restaurants such a little city offers. In her home town of Moedling, which is a student city, the city council forbids any big fast food chain to open up a restaurant.

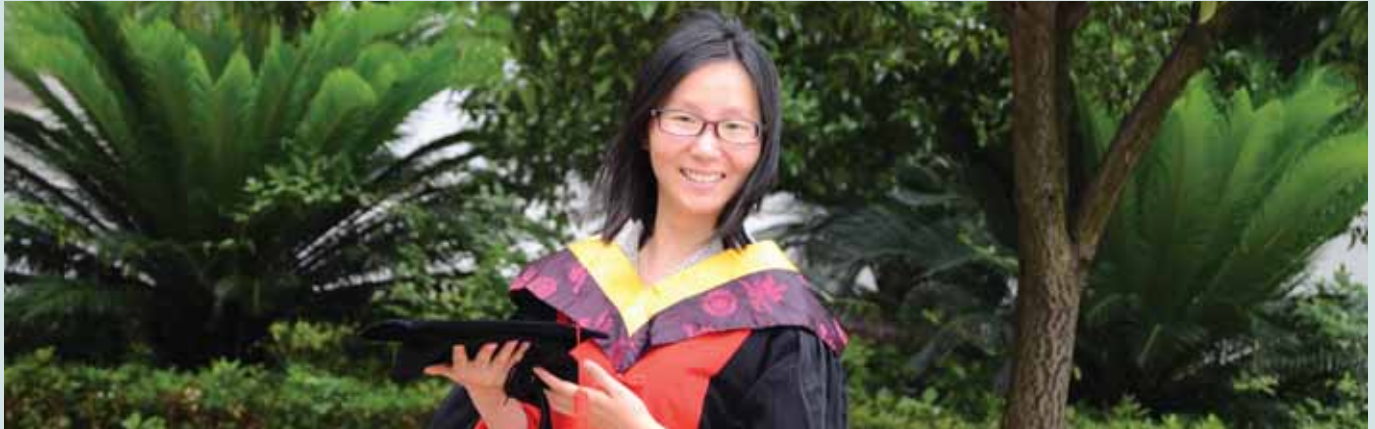
Ms Bariaud, whose hometown is near Limoges, France, says there is far less cheese available in New Zealand and the tomato sauce is too sweet.



Charlotte Bariaud and Natascha Ströbinger

Graduation celebration for visiting PhD student

Weilin Liu, a PhD student at Nanchang University in China, has graduated. The Riddet Institute hosted Ms Liu for a year under a university-authorised programme that allows its students overseas study opportunities.



Ms Liu's work was on liposome research, focusing on structure and digestion stability of liposomes and their formation mechanism. Some important parts of her PhD thesis about structure and digestion stability of liposomes were completed at the Riddet Institute, and supervised by Dr Aiqian Ye.

"I think that I am so lucky that I could study at Riddet for a year," said Ms Liu. "When I was a master's student in 2008, I took part in a conference in Wuxi, China and saw Harjinder [Distinguished Professor Harjinder Singh] giving a report about delivery systems. He is famous in liposome research and so I was

eager to go to his lab for a visit and study. Besides, I know Riddet is a very open institute and well known in food science and nutrition, and that fitted my major well. When I got the opportunity to go overseas as a PhD student, I decided to go to the Riddet Institute."

Internship leads to PhD for German scholar

Eva Maier's internship at the Riddet Institute led to her PhD study of bacteria in the gastrointestinal tract. Ms Maier arrived at the Riddet Institute on an internship in October 2010 after finishing her degree in nutritional sciences at the University of Hohenheim, Stuttgart, Germany. She wanted to gain work experience and improve her English language skills, and New Zealand as a destination was appealing.

While she was at the Riddet Institute she had the opportunity to use the cell culture facilities at AgResearch Grasslands, across the road from Massey University's campus in Palmerston North. She said, "I heard about the research they were doing within the Food Nutrition & Health team and because I was very interested in this field of research, I decided to apply for PhD study."

Ms Maier is now in her second year of study at Massey University, while based at AgResearch. Her supervisors are Riddet Institute Associate Investigator Dr Nicole Roy (AgResearch) and Dr Rachel Anderson of AgResearch. Ms

Maier's project is funded by Marsden (Fast-start project led by Dr Anderson) and her stipend is from the Riddet Institute CoRE.

In her PhD project Ms Maier is studying the effect of anaerobic bacteria on intestinal barrier function and immune homeostasis using a novel *in vitro* model. In particular she is studying *Faecalibacterium prausnitzii*, one of the more than 500 intestinal bacterial species. Previous studies have shown a reduced abundance of this bacterium in patients with inflammatory diseases compared with healthy people, suggesting it has an important role in promoting intestinal health. Little is yet



known, however, about the mechanism of action involved in this effect.

Apart from her study, Ms Maier is very keen on New Zealand, but not so in love with our food. "I love New Zealand's beautiful landscape, and people are very friendly," said Ms Maier. "There is also a good work atmosphere here. But I am not the biggest fan of typical food from New Zealand. I prefer Asian food, and luckily there is a big range of Asian food available in New Zealand. In saying that, however, I don't miss food from home a lot either – apart, of course, from the good bread."

Turning heads with protein research

MSc student Sumon Saha is trying to recover protein from waste fish heads. The study aims to develop a technique for isolating the maximum functional protein from hoki and barracouta heads without losing the integrity of the protein, and preserving it for use in consumer food products.



Fish is a very important source of animal proteins, providing 16.5% of proteins consumed by humans, and essential micronutrients.

During processing of fish, the heads, frames and tails are taken off for making low value products like fish meal, but the heads in particular contain a lot of protein.

Recovery of this protein in a suitable form for processing into consumer food products like surimi or fish cakes might be more profitable.

A process for the recovery of protein from fish by solubilisation in alkali and subsequent

precipitation at the iso-electric point of the protein was patented in 1999. But protein extraction from fish heads does not appear to have been commercialised to any extent.

The extraction process involves mincing the fish heads, then adding the mince to ice-cold water and homogenising while keeping very cold. The mixture is centrifuged to remove fat and residue.

Mr Saha says, “There are many technical difficulties involved in this method, mainly concerned with the efficient separation of lipid and insoluble materials from the soluble proteins, but the most important one is to

stop the endogenous protease activity which can harm the integrity of the isolated protein. Also it is a challenge to preserve the isolated protein, as it contains a high amount of water.”

Mr Saha was supervised during his Postgraduate diploma by Dr Shantanu Das, the Riddet Institute’s former Product Development Manager. He then undertook a six-month internship with Frucor at the Riddet Institute working on fruit juices. He is now working on his MSc and is being supervised by Dr Derek Haisman and Dr Mike Boland, and Riddet Institute Associate Investigator Professor John Bronlund (Massey University).



Future leaders will make a difference

As the Riddet Institute nears the end of its first six-year term as a Centre of Research Excellence, our students are also completing their PhD projects. While many have already finished and gone on to further research or to positions in the food industry, a considerable number are finalising their studies this year.



Seven students based at AgResearch are likely to complete their PhD studies by the end of this year. Back from left: Alicia Barnett, Sebastian Riedle, Caroline Thum. Front: Dulantha Ulluwishewa, Ranjita Sengupta, Nadja Berger, Amy Van Wey (inset).

TIM ANGELI



PhD scholar Tim Angeli has had three papers from his research accepted and published this year, with one featured as the journal cover art, one featured in a corresponding editorial in the journal, and the last published in the prestigious *Journal of Physiology*. Mr Angeli is finishing his thesis and plans to submit it in the next couple of months. The citations of the above mentioned papers are as follows:

Angeli TR, Du P, Paskaranandavadivel N, Janssen PWM, Lentle RG, Bissett IP, Cheng LK, O'Grady G. The bioelectrical basis of gastrointestinal extracellular slow wave recordings. *J. Physiol.* In Press (PMID: 23713030), 2013.

Angeli TR, O'Grady G, Du P, Paskaranandavadivel N, Pullan AJ, Bissett IP, Cheng LK. Circumferential and functional re-entry of in vivo slow-wave activity in the porcine small intestine. *Neurogastroenterol. Motil.* 25(5):e304-314, 2013.

*Highlighted by editorial.

Angeli TR, O'Grady G, Paskaranandavadivel N, Erickson JC, Du P, Pullan AJ, Bissett IP, Cheng LK. Experimental and automated analysis techniques for high-resolution electrical mapping of small intestine slow wave activity. *J. Neurogastroenterol. Motil.* 19(2):179-191, 2013.

*Selected as journal cover feature.

Joint degree a first for the Riddet Institute

Dr Amélie Deglaire, who now works for INRA, France, completed a joint PhD degree or cotutelle, from Massey University and AgroParisTech in France. She was supervised by Distinguished Professor Paul Moughan at the Riddet Institute and Professor Daniel Tomé at AgroParisTech. Dr Deglaire spent three years at the Riddet Institute during her human nutrition studies.



PhD scholar gains best young speaker award



Devastotra Poddar was the best young speaker at a recent conference in Hanoi, “Probiotics and their applications”, held from May 31 to June 1.

The conference focused on probiotics in human health. Mr Poddar’s presentation was entitled “Characterization of manganese and co-associated elements in probiotic bacteria and their encapsulates by synchrotron *X-ray* fluorescence microspectroscopy.”

EMMANUELLE RIOU

Emmanuelle Riou has successfully defended her PhD thesis but has made the decision not to graduate until 2014. Ms Riou, a French national, will be joined by friends and family from France at her graduation. She is currently working at the Fonterra Research and Development Centre in Palmerston North.



WARREN MINER-WILLIAMS

Warren Miner-Williams graduated PhD in a Massey University graduation ceremony in Auckland on April 16. The title of his thesis is: *The protein composition of endogenous losses in the human gut.*



ARNAB SARKAR

Arnab Sarkar graduated with an MSc in May. He is working for Synlait in Christchurch.



SYLVIA CHUNG CHUN LAM

Sylvia Chung Chun Lam successfully defended her PhD thesis in early April. Her area of study was energetics and satiety in humans.

NAMRATA (NIMMI) TANEJA

Riddet Institute technician Namrata (Nimmi) Taneja recently completed her MTech with distinction. The topic of her research was “Maximizing viability of *Lactobacillus paracasei subsp. paracasei L. casei 431* during processing and ambient storage.” Mrs Taneja said, “The objective of my research was to maximise the viability of probiotic bacteria *L. paracasei* during fermentation, drying (fluidised bed) and ambient storage. Various parameters at different stages from growth of the bacteria were investigated with the objective of finding the best combination for maximising the cell viability during manufacture and storage.” Mrs Taneja will graduate in November this year.



Job in Australia for PhD graduand

Jane Mullaney is delighted to have been offered what she describes as ‘an awesome opportunity’ to work at the University of Queensland’s Diamantina Institute as a post-doctoral scientist. She will be working with a group of immunologists headed by Dr Emma Hamilton-Williams on a three-year project studying how alterations in the microbiota of the intestine are implicated in having a role in the pathogenesis of developing autoimmune diseases (including type I diabetes).



The Diamantina Institute has two areas of study: cancer and autoimmunity, and is part of the larger Translational Research Institute.

Ms Mullaney said, “This work fits with my PhD work, where I have been studying how glucosinolates and their metabolism are affected by our intestinal microbiota and how this has an impact on human health.”

Ms Mullaney’s PhD was funded by the Riddet Institute and she was supervised by a member of each of three of the Riddet Institute partners: Dr Juliet Ansell (Plant & Food Research); Dr Bill Kelly, AgResearch, and Professor Julian Heyes, Massey University.

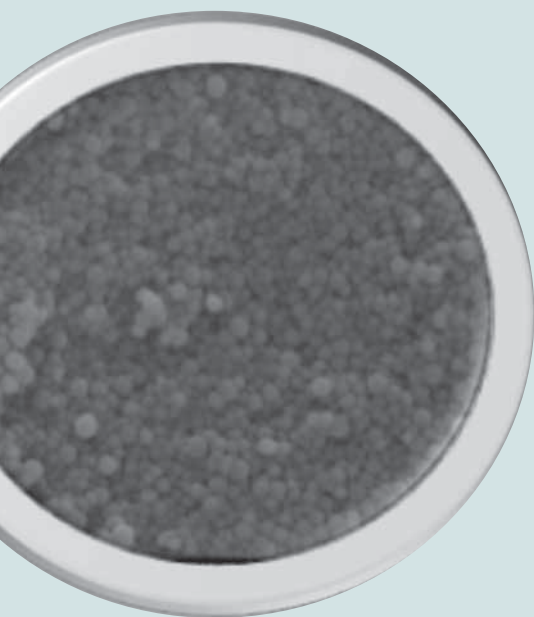
She said, “I found the supervision to be excellent and the research output from my project has generated so far two peer-reviewed publications and three more are being written.”

Ms Mullaney completed her PhD requirements in just over three years, and is still waiting to formally defend her thesis. She is likely to take up her new appointment in August.

Lignin microparticles – new structuring pathways from natural sources



Food materials derived from plant cell walls, such as celluloses, hemicelluloses and pectins have widespread applications in food products, providing structural, textural and nutritional benefits. The remaining structuring component of plant cell walls is lignin; however the potential use of this highly abundant raw material in food products remains relatively unexplored and unexploited.



Earle Scholarship PhD student Hayley Stewart (pictured) has been developing a process for producing microparticles of lignin using a food grade solvent-based extraction process. Since the hydrophobic properties of lignin make it poorly soluble in water, assembly into microparticles provides a way of homogenously dispersing the material into water-based foods. As part of her research, she has also determined that the lignin particle size and wettability can be manipulated by coating the microparticles with surfactants, significantly improving the dispersibility and physical stability of the particles in solution.

Currently, lignin is seen as an abundant, but low-value by-product of bioethanol production from lingo-cellulosic sources.

However, industrial microparticulation of lignin has the potential for delivering a novel ingredient system for use as a mimetic and structuring material for food applications, particularly since it provides no contribution to the calorie content of food. Additionally, control of particulate phase volume relative to water may provide additional benefits, such as the ability to manipulate water activity, sugar and salt content. The further use of lignin microparticles in the Pickering stabilisation of emulsions and foams is also being explored. Whilst the main context of this research relates to the study and use of this novel biomaterial in food systems, its potential value as a structuring component in other industry applications, such as pharmaceutical compositions or cosmetics cannot be ignored.

Figure – dried lignin particles after solvent extraction and precipitation. Particle size is ~0.2 µm

EMERGING SCIENTISTS

Digestion of meat the focus of a French/ New Zealand research collaboration



French scientists from INRA (the French national science organisation) and New Zealand researchers from the Riddet Institute are working together to find out how digestion of meat is affected by different kinds of processing and preparation (cooking) methods.

Dr Lovedeep Kaur and Dr Mike Boland are working initially with Thierry Austruc and Véronique Santé-Lhoutellier from INRA, supported by a D’Urville grant that provides travel funding between New Zealand and France.

The collaboration has five key objectives:

- To use a range of different processing technologies, including sous-vide and HPP to design ‘close to fresh’ meat foods with good textural attributes, flavour and improved protein digestibility. This will include developing an understanding of French methods of cooking meat, including

sous-vide cooking by visiting world-renowned French Culinary Institute Le Cordon Bleu headquarters in Paris and some French “molecular gastronomy” restaurants.

- To determine the effects of processing on the structure/ultrastructure of the novel meat foods and protein digestibility.
- To develop technologies to enhance the nutritional and sensory value of traditionally low-value cuts of meat.
- To initiate and foster a long-term collaboration between the French and New Zealand research groups in the field of meat

biochemistry and nutrition and to publish co-authored papers in peer-reviewed international journals.

- To up-skill researchers from both countries, including the development of doctoral students and young researchers, in cutting-edge microstructural and digestion techniques, including immunohistofluorescence, MALDI Imaging and *in vitro* protein digestion techniques.

Dr Kaur said that researchers on the project will meet in October for 10 days in France, and at the end of that month the French researchers will travel to the Riddet Institute to share further information. The French team also has a PhD student involved in the project.

Scientist to take up role in multinational food company

After nearly three years at the Riddet Institute as a postdoctoral fellow, Sophie Gallier is off to Danone Research in Utrecht, The Netherlands, to take up a role as Research Scientist. A French national, Dr Gallier says she is looking forward to being back closer to her family.



Encouraged by her supervisor, Dr David Everett at the University of Otago, to join New Zealand's Centre of Research Excellence, Dr Gallier took up a postdoctoral position at the Riddet Institute. "I believed that the Institute would offer me the opportunity to develop international collaborations and work with its nutrition team."

During her time at the Institute Dr Gallier has been examining the impact of food microstructures on the digestion of natural lipids. The lipid structures under study are: walnut and almond oil bodies, and bovine milk fat globules.

"We have looked at the impact of initial food microstructures, then followed the microstructural changes in the stomach and intestine using *in vitro* and *in vivo* (rats) models," she said.

Almond oil bodies were first studied in an aqueous dispersion system obtained by grinding almonds in water. This system

was close to the bolus formed after chewing almonds. Almond oil bodies showed extensive flocculation in the stomach *in vitro*.

The walnut study was completed with the assistance of summer student, Holly Tate. *In vitro* experiments showed that walnut oil bodies flocculated and coalesced in the stomach and formed multiple emulsions in the intestine, a phenomenon that Dr Gallier had not observed before.

In her *in vivo* studies with bovine milk Dr Gallier showed that cream from pasteurised, homogenised milk was digested to a greater extent than creams from raw milk and pasteurized milk. The study also showed that fatty acid crystals formed in the intestine possibly due to the formation of soaps of saturated fatty acids and calcium.

Last year Dr Gallier collaborated on a project with Professor Rafael Jiménez-Flores at California State Polytechnic, building model systems to understand the changes occurring at

the interface of milk fat globules under intestinal conditions.

A further human study with 42 participants is ongoing with Professor Manohar Garg, at the University of Newcastle in Australia, who is also a Resident Fellow at the Riddet Institute. The study will measure postprandial effects of almonds, almond milk, almond oil and emulsified almond oil on cardiovascular risk factors. An animal study, with Dr Shane Rutherford of the Riddet Institute, is looking at the effect of initial microstructure on the gastric emptying rate, microstructural changes within the gastrointestinal tract and fatty acid absorption of almond oil bodies. Dr Gallier will remain involved with these projects.

So far Dr Gallier's work has resulted in one paper on the characterization of natural lipids, two papers on the digestion of bovine milk and cream, and two papers on the digestion of almonds and walnuts. Two reviews have been published on lipid digestion. Two book chapters and two more papers have been submitted.

Food companies in Marlborough upbeat about cluster

The Riddet Institute has been active since last year in helping the Marlborough Research Centre with a strategy to maximise innovation in the local food industry.



photo: Plant & Food Research

From left: Gerald Hope, CEO Marlborough Research Centre (MRC), Maree Way (MRC) and Mark Ward.

Following the launch of the strategy earlier this year, ten companies have pledged financial support for the development of a Marlborough Food and Beverage Innovation Cluster. The cluster will be launched in August and comprises: New Zealand King Salmon, Marlborough Garlic Ltd, Cuddon Engineering Innovation, Sanford Limited, Annies, New Zealand Extracts Limited, Dry Food New Zealand Limited, Marlborough Saffron Room/

Saffron Extracts and Ingredients (Global) Limited, Hill Laboratories, and Marlborough Grape Marc Limited. The Riddet Institute's involvement in the project remains at the strategic level, but it is likely research and development opportunities will emerge for the Riddet Institute's partners.

Riddet Institute General Manager Mark Ward, who has led the Institute's involvement in the

region, said that the impetus for engaging in the region came from the recommendations of the report "A Call to Arms" published last year which advocates stimulating the food industry to make more investment in scientific research. "We are encouraging industry to take the lead. We have gone out directly to the food industry and asked them to examine the benefits of increasing innovation in their businesses. In Marlborough they have welcomed the idea with open arms."

New food innovation manager appointed



Dr Abby Thompson has returned to the Riddet Institute after more than five years in Europe. As the Institute's new Food Innovation Manager, she will lead the Institute's commercialisation and contract research activities, while still maintaining an active involvement in research.

Dr Thompson studied for a PhD in Food Technology at Massey University under the supervision of Professor Harjinder Singh, then took up a post-doctoral position at the Riddet Institute. During this time she became interested in gaining a better understanding

of nutrition, so undertook a three-year Research Fellowship at the University of Reading UK, where she performed human clinical studies investigating the effects of nutrition on risk of disease. Dr Thompson then moved to PepsiCo, and was based in their

UK headquarters while working on a range of global projects. Her combination of academic expertise and her experience within a large food multinational is a valuable addition to the Riddet Institute team.

An update on the Dairy PGP: nutrition and health



The Dairy Primary Growth Partnership (PGP) programme (post-farmgate) between Fonterra and the Ministry for Primary Industries (MPI), which comes under the scientific leadership of the Riddet Institute, is now entering its third year. The Nutrition and Health theme, which has been established more recently, is focused on research which will help to underpin Fonterra's strategy to develop dairy products for two key areas: mobility and paediatrics.

The Fonterra Chair in Nutrition, Professor Sally Poppitt, has recently been joined within the programme by a new Fonterra Programme Manager for Nutrition and Health based at the Fonterra Research and Development Centre (FRDC) in Palmerston North, Angela Rowan. In the last eight months expert review meetings have been held in Palmerston North and also in Adelaide, Australia to define and shape the research strategy going forwards into 2013/14.

Invited experts at the mobility research forum included Distinguished Professor Paul Moughan from the Riddet Institute, Professor David Cameron-Smith and Dr Nicola Dalbeth from The University of Auckland, Professor Marlena Kruger from Massey University, and Associate Professor Anthony Blazeovich from Perth, Australia along with Fonterra's bone health expert, Dr Linda Schollum. The major focus of the meeting was research in bone,

joint and muscle biology to enhance mobility for healthy aging. This has led to the initiation of a number of projects investigating the role of dairy and its components, including use of *in vitro* models, mechanistic studies and a programme of clinical studies for maintenance of strength and mobility. Other projects are underway which will focus on development and validation of new mobility assessment techniques in key target populations; and the assessment of protein quality with support for an international collaboration to validate the DIAAS method, as proposed by a recent FAO Expert Consultation and relying heavily on past Riddet Institute studies.

A paediatrics expert panel was convened in April 2013 in conjunction with a joint meeting of the International Society for the Study of Fatty Acids and Lipids (ISSFAL) and the Perinatal Society for Australia and New Zealand (PSANZ) held in Adelaide. This was

attended by international experts including Professor Tom Brenna, from Cornell University in the US, Professor Susan Carlson from the University of Kansas, and Professors Bob Gibson and Maria Makrides from the University of Adelaide, and Fonterra's lipids experts Drs Alastair MacGibbon and Paul McJarow. The focus of this meeting was to determine the strategy within paediatric nutrition for the PGP programme. Several new projects are underway or in the planning stages with focus in areas identified as key to Fonterra such as cognition in infants and young children.

There are also other new faces within the programme. New postdocs and PhD students have gradually been entering the PGP Nutrition and Health theme, and more are expected over the coming six months. Building New Zealand research capability, as part of the delivery of robust science outputs, remains a priority for the programme.

In Brief

Food HQ is being launched on 29 July and is a partnership of the Riddet Institute, Massey University, AgResearch, Plant & Food Research, Fonterra, the BCC, Palmerston North City Council and Manawatu District Council. Members are building a joint brand to ensure the group will be better known throughout the southern hemisphere.

Distinguished Professor Paul Moughan has recently returned from a four-week trip to Europe where he partook in an on-site science review of two Wageningen University Research Institutes, delivered a post-graduate course on food evaluation science and presented at the conference: Innovision 2013. He also held discussions with three leading international food and nutritional companies, furthering Riddet's research reach and met with the FAO

team in Rome to advance discussions following the release this year of the FAO Report on Dietary Protein Quality for Human Nutrition.

General Manager Mark Ward has been seconded to the Ministry for Primary Industries for three days a week for six months to advise on strategy.

Riddet Institute **Food Innovation Manager Dr Abby Thompson** has been chosen to participate in the new global leadership forum LEAD 360 in Chicago. Dr Thompson was nominated by the New Zealand Institute of Food Science & Technology Inc.

Distinguished Professor Harjinder Singh has accepted an invitation to join the editorial board of the international food science journal,

LWT- Food Science and Technology, published by Elsevier. The journal covers a broad range of topics in the fields of food chemistry, biochemistry, microbiology, technology and nutrition.

Senior Research Officer Dr Jaspreet Singh has been appointed to the editorial board of the journal, *Food Chemistry*.

The **Food Structures, Digestion & Health international conference** will be held this year in Melbourne, from 22-24 October. Full details are on the conference website: www.foodstructureandhealth2013.com. The inaugural conference, organised by the Riddet Institute, was held last year in Palmerston North.

Publications

Nutrition and Physical Activity in Inflammatory Diseases

Riddet Institute Resident Fellow Professor Manohar Garg (University of Newcastle, Australia) has edited a new book: *Nutrition and Physical Activity in Inflammatory Diseases*, along with with Dr LG Wood, also at the University of Newcastle.

“Certain nutrients and physical activity can significantly alter immune function and inflammation. Targeted interventions may be an effective and inexpensive means to improve the inflammation and immune dysfunction associated with chronic diseases. This book defines the relevant underlying biological mechanisms and strengthens our understanding of how nutrients and physical activity impact inflammatory diseases. A useful reference for researchers and students of nutrition, physiology and sports science, it explores the unique aspects of inflammation induced by nutritional deficiencies or activity levels, and their interrelationship.”



Professor Manohar Garg

Advances in Food Nutrition Research

Nutritional Benefits of Kiwifruit, was published in May by Elsevier. The book's editors, Distinguished Professor Paul Moughan and Dr Mike Boland of the Riddet Institute, have brought together an impressive reference tool for scientific researchers.

The book contains eighteen chapters as follows:

- Background material on kiwifruit (Chapters 1 and 2)
- Composition of kiwifruit (including a focus on unique and important components) (Chapters 3-7)
- Kiwifruit and digestive health (Chapters 8-12)
- Other health aspects of kiwifruit (Chapters 13-18)

Zespri General Manager Marketing Carol Ward, who co-wrote the book's first chapter says: “Research has shown an appreciation of the health benefits of kiwifruit is bettered only by taste and consistency as a driver for purchase and consumption.”

Zespri International Ltd's Health Science Advisor Lynley Drummond says: “It is critical that any modern food manufacturer backs up claims about the nutritional value of their product with robust science.”



Dr Mike Boland is co-editor of the book, with Distinguished Professor Paul Moughan