

# CENTRE FOR MOLECULAR THERAPEUTICS

MARCH NEWS UPDATE



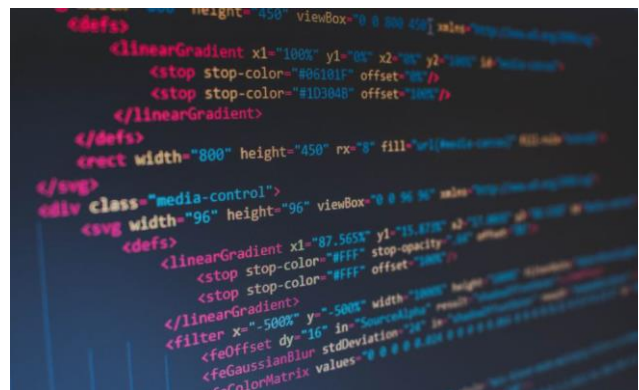
## BIG DATA TAKES AIM AT A HUMAN PROBLEM

**Dr Ashley Waardenberg** - A James Cook University scientist is part of an international team that's used new 'big data' analysis to achieve a major advance in understanding neurological disorders such as Epilepsy, Alzheimer's and Parkinson's disease.

Dr Ashley Waardenberg a Theme Leader from JCU's Centre for Tropical Bioinformatics and Molecular Biology, said scientists from JCU, The Children's Medical Research Institute, Sydney, University of Southern Denmark and Bonn University (Germany) looked at how neurons in the brain communicated with each other.

Read full Article.

<http://getstem.com.au/big-data-takes-aim-at-a-big-human-problem/>



*DR ASHLEY WAARDENBERG*

## GENETIC TESTING AT CAIRNS BASE HOSPITAL AIMS TO CATCH DEADLY DISEASES

**Prof John McBride and Dr Matt Field**- James Cook University researchers will be trialling the use of handheld genetic testing devices at Cairns and Townsville public hospitals to catch deadly diseases before they get out of control.



*PROF JOHN MCBRIDE & DR MATT FIELD*

<https://www.cairnspost.com.au/news/cairns/genetic-testing-at-cairns-hospital-aims-to-catch-deadly-diseases/news-story/0f74a310e117a26e9e0731119cf2e048>



PROF ANDREAS LOPATA

## EATING FISH MAY HELP PREVENT ASTHMA

**Prof Andreas Lopata** - A James Cook University scientist says an innovative study has revealed new evidence that eating fish can help prevent asthma.

Professor Andreas Lopata from JCU's AITHM took part in the study which tested 642 people who worked in a fish processing factory in a small village in South Africa.

Read the full Article

<http://getstem.com.au/eating-fish-may-help-prevent-asthma/>

## MARCH SUBMISSIONS

### Mohadeseh Dastpeyman

*Structure-Function Relationships of Disulphide-Rich Peptides*

*RIGHT: Professor Norelle Daly & Mohadeseh at the morning tea celebration.*



### Bemnet Amare

*Molecular and Immunological characterization of Schistosoma acetylcholinesterases and their evaluation as a potential immunogenic vaccine candidates.*

### Stephanie Ryan

*Investigating the Immunomodulatory Properties of Hookworm Excretory / Secretory Products Produced in a Cell-Free Protein Expression System*

*RIGHT: Prof Alex Loukas, Dr Mark Pearson, Stephanie Ryan and Bemnet Amare*



## CMT PUBLICATIONS THIS QUARTER

Berger, Maximus, Taylor, Sean, Harriss, Linton, Campbell, Sandra, Thompson, Fintan, Jones, Samuel, Sushames, Ashleigh, Amminger, G. Paul, Sarnyai, Zoltan, and McDermott, Robyn (2019) *Hair cortisol, allostatic load, and depressive symptoms in Australian Aboriginal and Torres Strait Islander people*. Stress.

Chasland, Lauren C., Knuiman, Matthew W., Divitini, Mark L., Murray, Kevin, Handelsman, David J., Flicker, Leon, Hankey, Graeme J., Almeida, Osvaldo P., Gollidge, Jonathan, Ridgers, Nicola D., Naylor, Louise H., Green, Daniel J., and Yeap, Bu B. (2019) *Higher circulating androgens and higher physical activity levels are associated with less central adiposity and lower risk of cardiovascular death in older men*. Clinical Endocrinology, 90 (2). pp. 375-383

Cooper, Martha M., Loiseau, Claire, McCarthy, James S., and Doolan, Denise L. (2019) *Human challenge models: tools to accelerate the development of malaria vaccines*. Expert Review of Vaccines.

Currell, Scott Derek, Liaw, Andrew, Blackmore Grant, Peter Donald, Esterman, Adrian, and Nimmo, Alan (2019) *Orthodontic mechanotherapies and their influence on external root resorption: a systematic review*. American Journal of Orthodontics and Dentofacial Orthopedics, 155 (3). pp. 313-329.

Holt, Michael R., Miles, John J., Inder, Warrick J., and Thomson, Rachel (2019) *Exploring immunomodulation by endocrine changes in Lady Windermere Syndrome*. Clinical and Experimental Immunology. (In Press)

Harriss, Linton R., Thompson, Fintan, Lawson, Kenny, O'Loughlin, Mary, and McDermott, Robyn (2019) *Preventable hospitalisations in regional Queensland: potential for primary health?* Australian Health Review. AH18033. (In Press)

Kreuter, Roxane, Wankell, Miriam, Ahlenstiel, Golo, and Hebbard, Lionel (2019) *The role of obesity in inflammatory bowel disease*. Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease, 1865 (1). pp. 63-72.

Liaw, A., Miller, C., and Nimmo, A. (2019) *Comparing the periodontal tissue response to non-surgical scaling and root planing alone, adjunctive azithromycin, or adjunctive amoxicillin plus metronidazole in generalized chronic moderate-to-severe periodontitis: a preliminary randomized controlled trial*. Australian Dental Journal. (In Press)

Law, Soi Cheng, Haigh, Oscar L., Walpole, Carina M., Colm, Keane, Miles, John J., Ghandi, Maher K., Radford, Kristen J., and Steptoe, Raymond J. (2019) *Simple, rapid and inexpensive typing of common HLA class I alleles for immunological studies*. Journal of Immunological Methods, 465. pp. 72-76.

Nugraha, Ari Satia, Pratoko, Dwi Koko, Damayanti, Yuvita Dian, Lestari, Nadya Dini, Laksono, Tinton Agung, Addy, Hardian Susilo, Untari, Ludmilla Fitri, Kusumawardani, Banun, and Wangchuk, Phurpa (2019) *Antibacterial and anticancer activities of nine lichens of Indonesian Java Island*. Journal of Biologically Active Products from Nature, 9 (1). pp. 39-46.

O'Loughlin, Mary, Harriss, Linton, Thompson, Fintan, McDermott, Robyn, and Mills, Jane (2019) *Exploring factors that influence adult presentation to an emergency department in regional Queensland: a linked, cross-sectional, patient perspective study*. *Emergency Medicine Australasia*, 31 (3). pp. 67-75.

Rowland, Joshua, Akbarov, Artur, Eales, James, Xu, Xiaoguang, Dormer, John P., Guo, Hui, Denniff, Matthew, Jiang, Xiao, Ranjzad, Parisa, Nazgiewicz, Alicja, Ribeiro Prestes, Prescilla, Antczak, Andrzej, Szulinska, Monika, Wise, Ingrid A., Zukowska-Szczechowska, Ewa, Bogdanski, Pawel, Woolf, Adrian S., Samani, Nilesh J., Charchar, Fadi J., and Tomaszewski, Maciej (2019) *Uncovering genetic mechanisms of kidney aging through transcriptomics, genomics, and epigenomics*. *Kidney International*, 95 (3). pp. 624-635.

Vuckovic, Slavica, Minnie, Simone A., Smith, David, Gartlan, Kate H., Watkins, Thomas S., Markey, Kate A., Mukhopadhyay, Pamela, Guillerey, Camille, Kuns, Rachel D., Locke, Kelly R., Pritchard, Antonia L., Johansson, Peter A., Varelias, Antiopi, Zhang, Ping, Huntington, Nicholas D., Waddell, Nicola, Chesi, Marta, Miles, John J., Smyth, Mark J., and Hill, Geoffrey R. (2019) *Bone marrow transplantation generates T cell-dependent control of myeloma in mice*. *Journal of Clinical Investigation*, 129 (1). pp. 106-121.

Van den Berghe, Femke, Paris, Monique C.J., Sarnyai, Zoltan, Briggs, Michael B., Millar, Robert P., Ganswindt, Andre, and Paris, Damien B.B.P. (2019) *Social rank does not affect sperm quality in male African wild dogs (*Lycaon pictus*)*. *Reproduction, Fertility and Development*. (In Press)

Walker, Sarah, Wankell, Miriam, White, Rose, Ho, Vikki, Deo, Nikita, Devine, Carol, Dewdney, Brittany, Bhathal, Prithi, Govaere, Olivier, Roskams, Tania, Qiao, Liang, George, Jacob, and Hebbard, Lionel (2019) *Targeting mTOR and Src restricts hepatocellular carcinoma growth in a novel murine liver cancer model*. *PLoS One*, 14 (2). e0212860.

Zijlema, Wilma L., Stasinska, Ania, Blake, David, Dirgawati, Mila, Flicker, Leon, Yeap, Bu B., Golledge, Jonathan, Hankey, Graeme J., Nieuwenhuijsen, Mark, and Heyworth, Jane (2019) *The longitudinal association between natural outdoor environments and mortality in 9218 older men from Perth, Western Australia*. *Environment International*, 125. pp. 430-436.

Ruethers T, Taki AC, Nugraha R, Cao TT1, Koeberl M, Kamath SD, Williamson NA, O'Callaghan S, Nie S, Mehr SS, Campbell DE, Lopata AL, Variability of allergens in commercial fish extracts for skin prick testing. [Please see attached PDF](#)

Le TTK, Nguyen DH, Vu ATL, Ruethers T, Taki AC, Lopata AL A cross-sectional, population-based study on the prevalence of food allergies among children in two different socio-economic regions of Vietnam. [Please see attached PDF](#)

“Probably Science” live podcast Cairns event: Show Report

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## Under the Microscope - Kim Miles



1. Tell me about your area of research?

*I am working as a research assistant for the ParagenBio Project which is looking at finding a treatment for inflammatory bowel disease using proteins derived from hookworm secretions.*

2. What interests you about working in this area?

*This is an exciting project as it translational, I can imagine that the basic science we are doing could help create a therapy which could be used in the clinic.*

3. How do you see your research developing in the future?

*Oh, if only I knew! My role is very flexible but grant dependent. I have been working as a research assistant for 10 years and in that time, I have worked in six different labs, with everything from a few months of work after getting my degree to working in a lab in Cardiff, UK. I have gained so many different technical skills but there are still so many more I could learn.*

4. What are the 5 most important techniques you use in your research?

*Being a team member. Documenting everything, clearly. Aseptic technique. Developing the ability to set your timer, leave it behind and still come back with 30sec to spare. Multitasking.*

5. What advice do you have for science students who are considering medical research as a career?

*Try and get some work experience in a few different labs. If you can sit down and talk to the researchers, see what day to day life is like in the lab and be prepared to learn a lot of acronyms.*

6. What do you see as the benefits of being part of the Centre for Molecular Therapeutics (CMT)?

*Being surrounded by people who are enthusiastic to be at work and love what they do.*

7. What would you like to do in the future?

*I would like to keep working in Cairns at JCU, I haven't worked here long but it's great. The campus is in such a wild setting, the people are lovely and I'd like to bring up my family here.*

8. Tell me 5 things you dislike?

*Liquorice, Liars, Relentless wind, Cane Toads, Gympie road in Brisbane.*

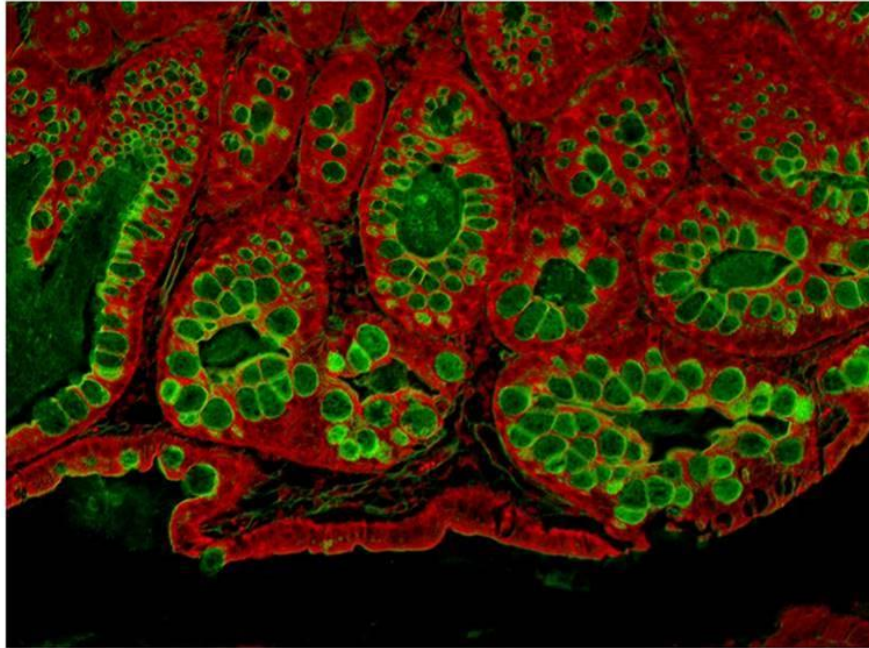
9. Tell me 5 things that make you happy?

*Cooking, Gardening, Going to the Beach, Playing with my kids and Gin*

10. Tell me about the highlights of your professional career so far?

*I got to work in the Wellcome Institute at Heath Hospital in Cardiff for 3 years, it was fantastic to work outside of Australia for a while. Also, a few years ago I took an image of a gut section for my supervisor which went on to win a prize.*

<https://cosmosmagazine.com/biology/microscopic-secrets-your-immune-system-unveiled>



'Inflammatory bowel disease'. – Fernando Guimaraes, Walter and Eliza Hall Institute of Medical Research / Kimberley Miles, QIMR Berghofer Medical Research Institute

#### A goblet to calm the gut

Like skin, the gut lining is a border between you and the environment. With a surface area of around a tennis court, your intestinal epithelium keeps the immune system busy defending against any pathogens which hitch a ride with food.

When the gut's immune system switches to overdrive, it can produce chronic inflammation and cause diseases such as ulcerative colitis or Crohn's disease. In the image above, we can see Goblet cells (green) spotted along the colon (red). These cells produce mucous which can protect the intestine from aggressive inflammation.