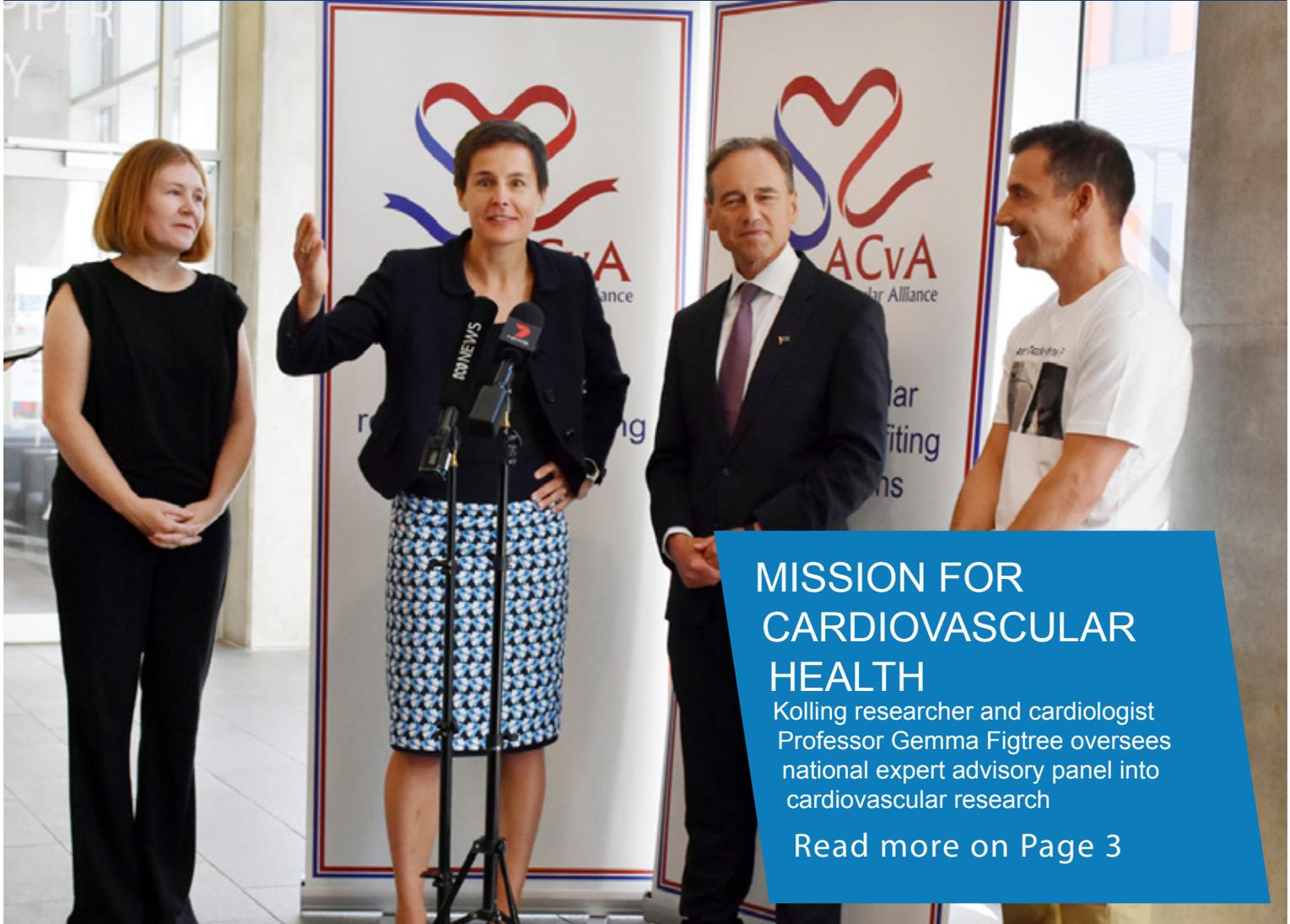


KOLLING INSTITUTE | NEWS

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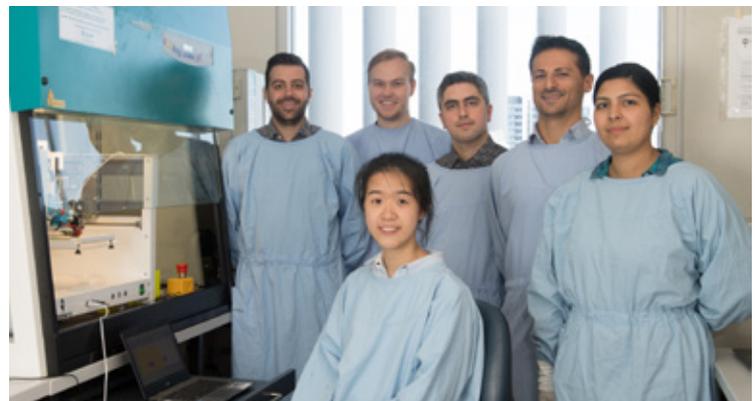
MISSION FOR CARDIOVASCULAR HEALTH

Kolling researcher and cardiologist Professor Gemma Figtree oversees national expert advisory panel into cardiovascular research

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Discovery into reality



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THE UNIVERSITY OF SYDNEY



Health
Northern Sydney
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MESSAGE FROM THE (INTERIM) DIRECTOR OF RESEARCH

It is an exciting time for translational medical research in Australia with the establishment of the Federal

Government's Medical Research Future Fund (MRFF), which offers \$20 billion in investment for medical research to improve the health of Australians and support medical discoveries that benefit patients. We are well positioned to secure some of the MRFF funding.

While last year was about transformation and laying the foundations to support our researchers, this year is about growth and further developing our cutting edge research.

In this edition, you will read about some of the wonderful successes of our researchers, such as Professor Gemma Figtree, who is leading the Mission for Cardiovascular Health, announced recently by Federal Health Minister Greg Hunt.

Also in the field of cardiology, Dr Carmine Gentile and his team have just received a grant to investigate whether 3D-mini hearts, which he produces with a special 3D bio printer, can test the effects of a medication before it is given to the patient.

Here at Kolling we are very privileged to have such generous support from community members and groups who raise money to fund research. Recent community fundraising initiatives have gone on to help researchers in the Bill Walsh Translational Cancer Research Laboratory.

I am also excited to announce the establishment of a travel and career support program for our PhD students, and early and mid-year researchers with the Beryl and Jack Jacobs travel fellowships. We have been able to do this with the wonderful support of the Skipper Jacobs Charitable Trust and the Kolling Foundation, the fundraising arm of Kolling Institute and Northern Sydney Local Health District.

I hope you enjoy this edition.

Carolyn Sue

(Interim) Director of Research
Kolling Institute of Medical Research



MESSAGE FROM THE CHAIR

I would like to officially welcome you to the first edition of the Kolling Institute of Medical Research News.

The Kolling is a leader in medical research and is the oldest medical research institute in NSW. It extends far beyond the Kolling Building, which stands tall on the Royal North Shore Hospital campus, at St Leonards, and houses our laboratories. The Kolling oversees research across the Northern Sydney Local Health District and is able to meet the demands for world-class research into the 21st century.

Both The University of Sydney and the Local Health District are partners in supporting the work of the Kolling. In the past 15 months, the Institute has been undergoing a review of the joint venture arrangements and governance structure. The aim of the partners is to provide the Kolling Institute – its researchers, staff and partners- with strong foundations as it establishes itself as a world leader in translational research.

This revitalisation has seen the appointment of an Interim Director of Research, Professor Carolyn Sue, to initiate the revitalisation process. Professor Sue has undertaken this role with much energy and, under her guidance, we have also seen some important expansion of research areas with the appointment of Professor Bill Walter for orthopaedic surgery, Professor Jim Elliott for allied health and Professor Mark Molloy for bowel cancer research.

It is an exciting time for research with the Federal Government's establishment of the Medical Research Future Fund (MRFF). The MRFF is expected to provide up to \$1 billion each year for research which particularly targets patient outcome improvements. The aim for the Kolling Institute, and that of the Interim Management Committee, is to position the Kolling so it can maximise the opportunities and capitalise on the research funding provided through the MRFF.

Michael Nugent

Chair, Interim Management Committee
Kolling Institute of Medical Research





Professor Gemma Figtree standing next to Federal Health Minister Greg Hunt at the Kolling Institute

\$220 MILLION FOR RESEARCH TO TACKLE HEART DISEASE AND STROKE

Kolling Institute Professor and President of the Australian Cardiovascular Alliance, Gemma Figtree, has been appointed as chair of an expert advisory panel to tackle the nation's two biggest killers – heart disease and stroke.

Federal Health Minister Greg Hunt announced \$220 million for the Mission for Cardiovascular Health which aims to improve health outcomes and improve the lives of those patients suffering a heart attack or stroke.

The funding, awarded under the Government's landmark Medical Research Future Fund (MRFF), will support Australian researchers to make game-

changing discoveries, develop a global biotech industry and enable the implementation of changes in healthcare.

Cardiovascular disease is the underlying cause of 43,500 deaths in Australia. One Australian dies of cardiovascular disease every 12 minutes, with one Australian experiencing a heart attack or stroke every five minutes.

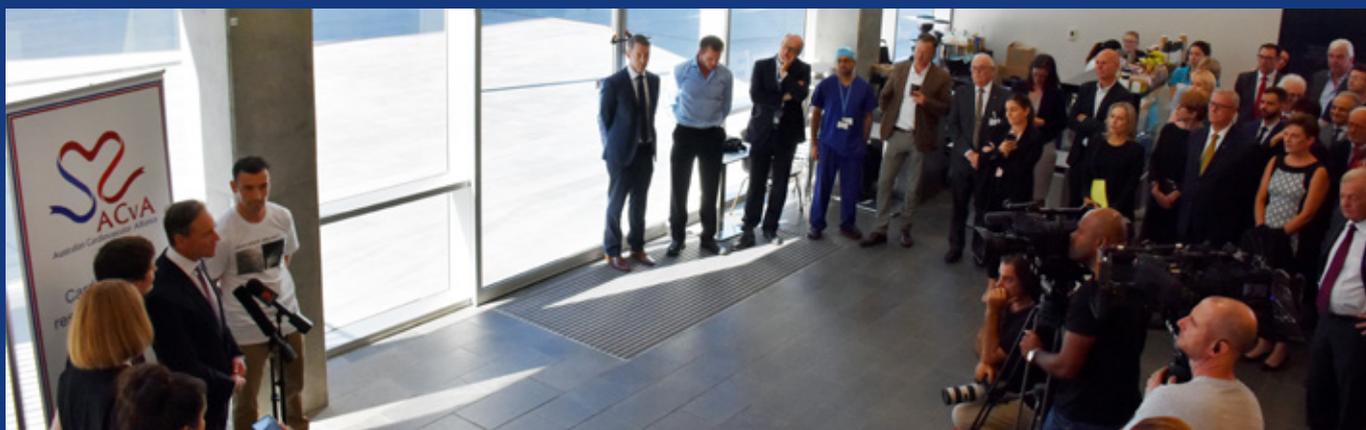
In 2017 alone, more than 100,000 Australians experienced a heart attack or stroke.

"The Mission for Cardiovascular Health will support innovative pathways that ensure all Australians receive best evidence-based care, as well as ensure that new treatments, and diagnostic techniques help target best preventative management," Professor Figtree said.

"It will aim to reduce hospitalisations, develop clinical trials and new drug therapies, use the unique DNA of a patient to develop new therapies and also look into why people who don't lead a unhealthy lifestyle or have a genetic cause suffer heart attacks."

A medical research mission is defined by the MRFF as a program of work with ambitious objectives that are only possible through significant investment, leadership and collaboration.

The mission will be overseen by an expert advisory panel chaired by Professor Figtree, who is Advanced Cardiovascular Imaging co-director at Kolling Institute, and interventional cardiologist at Royal North Shore Hospital.



FIGHTING FOR A CURE

A Northern Beaches fundraising group dedicated to finding a cure for cancer is funding two researchers from the Bill Walsh Translational Cancer Research Laboratory, located within the Kolling Institute.

Every year, the Fight on the Beaches donates the majority of the money raised to fund cancer researchers in a lab for 12 months.

Drs Emily Colvin, Malinda Itchins and Sarah Hayes of the Bill Walsh Lab are being supported in their research through the Northern Beaches group.

Dr Colvin is a Cancer Institute NSW and Proud Family Fellow early career post-doctoral researcher working in ovarian cancer. Her goal is to determine whether nanomedicine can improve the effectiveness of chemotherapy in ovarian cancer.

Dr Itchins is a medical oncologist at Royal North Shore Hospital and NSW Health PhD scholar. Together with post-doctoral researcher Dr Hayes, she is researching how to monitor the development of treatment resistance using a simple blood test for patients with a specific type of lung cancer called ALK-translocated lung cancer.

Fight on the Beaches was formed in 2014 by eight women living on Sydney's Northern Beaches who had all been affected by cancer.

To find out more about Fight on the Beaches, visit www.fightonthebeaches.com.au



Bill Walsh Lab's Angela Cho, Kelly McKelvey, A/Prof Helen Wheeler, Dr Vanessa Sammons, and A/Prof Viive Howell

CELEBRATING WOMEN IN THE FIELD OF BRAIN CANCER

Women in brain cancer research were celebrated at a breakfast held on International Women's Day.

The Breakfast for Brain Cancer raised money for research performed by the Brain Cancer Group within the Bill Walsh Translational Cancer Research Laboratory, at the Kolling Institute.

Hosted by the White Pearl Foundation, organiser Suzane Peponis Brisimis said she hoped the breakfast would be an annual fundraiser.

"The White Pearl Foundation's inaugural Breakfast for Brain Cancer, Celebrating Women in Brain Cancer Research, brought together a panel of brain cancer experts for a very informative discussion over breakfast," Ms Peponis Brisimis said.

"It was a wonderful event with women inspiring other women and men sharing their expertise, what inspires them and their aspirations for fighting disease."

Brain cancer survival rates are low and have hardly changed for 30 years, despite significant increases in survival for Australians diagnosed with other types of cancer, such as prostate and breast cancer.

On average, approximately 1750 brain cancers are diagnosed each year in Australia.

Attendees at the breakfast heard the latest on research and discoveries from guest speakers including medical oncologist Associate Professor Helen Wheeler; Bill Walsh Laboratory director Associate Professor Viive Howell; neurosurgeon Dr Vanessa Sammons; Matt Callander Beanie for Brain Cancer HMRI Fellow Dr Kelly McKelvey; Phd student Angela Cho; and neuro oncology nurse practitioner Marina Kastelan.

To host your own Breakfast for Brain Cancer visit www.whitepearlfundraiser.org or phone Suzane on 0418 238 723.

Do you have some news?

Perhaps a new grant, update on research, an accolade?
Then email NSLHD-AreaCommunications@health.nsw.gov.au

MENDING HEARTS WITH 3D PRINTERS

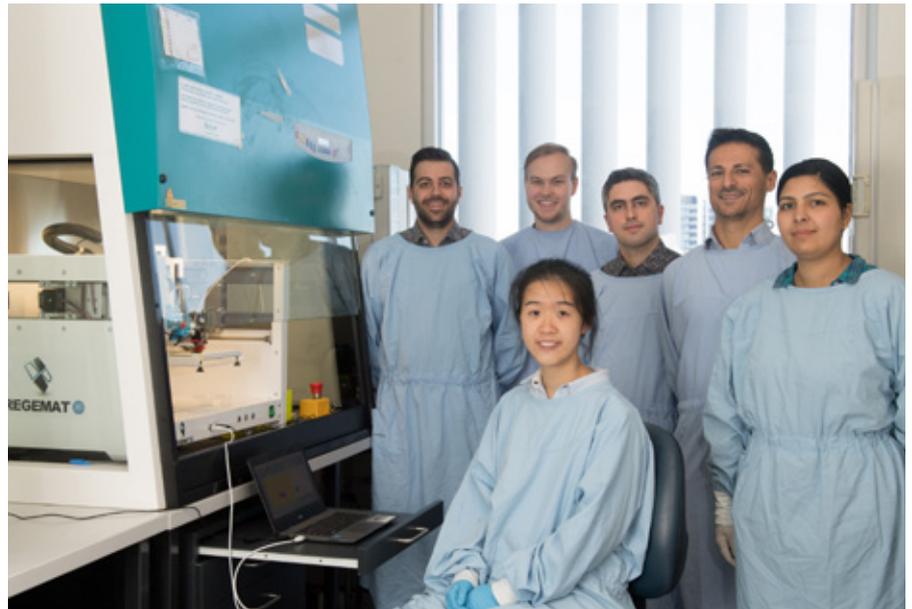
Scientists at the Kolling Institute are testing a 3D bio printer – which prints actual heart cells – with the aim of one day being able to transplant these cells into damaged human hearts and let the heart contract properly again.

The goal for scientists Dr Carmine Gentile and his colleagues, is to be able to use 3D bio-printed “mini hearts” they have generated with the bio printer – with specially designed “bio-inks” made of cells - in patients whose hearts have been damaged by heart attacks, avoiding the need for full heart transplants.

“How it works is we take cells from a patient’s skin or blood,” Dr Gentile said.

“Those cells can generate stem cells and then heart cells. The beating stem cells can be printed into tissue – through the 3D bio printer - which would be stuck directly onto a patient’s heart to repair damage after an attack. The 3D cardiac tissue will be utilised to replace the damaged tissue in the patient.”

Dr Gentile has already been successful in printing the 3D mini



hearts and the broad concept is not new. Other researchers around the world have managed to 3D print alternate layers of blood cells and muscle cells.

What makes Dr Gentile’s approach unique is the mini hearts more fully integrate all the cell types present in the human heart, including preformed blood vessels. These cells are used as bio-ink in a bio printer that was custom-made for Dr Gentile and his team.

Now he is moving to test the theory in laboratory studies before moving to clinical trial.

“Every 12 minutes, an Australian suffers a heart attack,” says Dr Gentile. “Once the heart tissue has been damaged, there is no real treatment for the patient.”

It is estimated 350,000 Australians will have a heart attack at some time in their lives. Despite improvements in preventing cardiovascular disease, heart attacks kill 24 Australians patients every day.

The new 3D-printed heart tissues are now being used to test new drugs for individual patients. Recent funding for the research means Dr Gentile and his colleagues could now see what side-effects drugs have on a patient, before that person takes them, by using cells their own cells.

Researchers are hopeful the therapy could be available for patients in the next five years. The research and the new bio-printer are funded by the Ian Potter Foundation, the Sydney Medical School Foundation, Heart Research Australia and more recently by the Commercial Development and Industry Partnership at the University of Sydney.



RNSH SPEECH PATHOLOGIST WINS PRESTIGIOUS AWARD

Speech pathologist Danielle Stone has been awarded the highly competitive Professor Jeri Logemann travel award at the Dysphagia Research Society in San Diego.

Ms Stone's research is looking into perceived swallow change in people who have suffered whiplash following an accident. People have reported swallowing disorders following whiplash but the incidence and cause is unknown.

Ms Stone, who is a PhD student at the Neuromuscular Imaging Research Lab, collaborated with researchers around the world to see if patients, who had been in a motor vehicle accident, if they reported changes to their swallowing abilities.

Prof Logemann was a pioneer in the study of dysphagia (or swallowing disorders). Her research interests included the quantification of normal swallowing physiology, the

assessment of and treatment for voice and swallowing dysfunction in patients with head and neck cancer and those with neurological impairments.

Prof Logemann wrote the textbook on dysphagia, which changed the way swallowing disorders are studied, diagnosed, and managed.

MARK HUGHES FOUNDATION AT KOLLING

Five highly innovative brain cancer research projects have received over \$725,000 in funding from the Mark Hughes Foundation (MHF) following a nationwide call-out and scientific review by experts in the field.

In the spirit of fostering collaboration and innovation, these MHF grants are administered by the Hunter Medical Research Institute.

The recipients were recently announced at the Kolling Institute, with guests including NRL Chief Executive Todd Greenberg, the Callander family and representatives of Channel Nine and Fox Sports to recognise rugby league's support for the 2018 MHF Beanie Round.

MHF co-founder Mark Hughes said the inaugural Brain Cancer Innovation Project Grant Round was challenging in that researchers had a relatively short timeframe to develop novel ideas in collaboration with other researchers.

"These projects will be conducted over one to two years, with the ultimate goal of solving the riddle of brain



A/Professor Viive Howell, Mark Hughes and A/Professor Helen Wheeler

cancer," he said.

"We wanted to award funding to big thinkers who could knuckle down and tackle this insidious disease."

The Mark Hughes Foundation funds research of The Brain Cancer Group within the Bill Walsh Translational Cancer Research Laboratory at the Kolling Institute.

Bill Walsh Lab Research Director and member of the MHF scientific committee, Associate Professor Viive Howell, said funding to research rare cancers, such as brain cancer, had traditionally been hard to attract but was now gaining momentum as more people became aware of the

disease.

"The support of foundations like MHF in getting the message out there about brain cancer is so important because it means more people become aware and want to support the vital work of researchers," she said.

"We are very grateful that the MHF chose the Kolling Institute to host its awards and congratulate the recipients."

IMPACT OF SOCIAL MEDIA IN ACADEMIA- MORE THAN THE NUMBER OF FOLLOWERS!

Social media is now considered a vital tool for academia to have research recognised globally.

An avid user of Twitter, Dr Anastasia Mihailidou (pictured), senior hospital scientist Cardiology Department, Royal North Shore Hospital and Head of Cardiovascular and Hormonal Research Laboratory at Kolling Institute, was recently asked by the International Society of Hypertension (ISH) to share her personal experience in using the social media platform.

Here is how she described Twitter supporting academia:

“The best analogy I can offer is that Twitter can amplify life’s ‘sliding doors’ moments towards opportunity, collaborations and friendships,” she said.

“While some focus on self-promotion and the number of followers or ‘likes’, Twitter

has a major role in science communication and not only peer review, but engaging our community.

“The flow of information and interactions is faster and greater than traditional channels; it has transformed the world into a supportive network, without boundaries of distance or status.”

Anastasia said while still a novice Tweeter, she considers it the best decision she has ever made.

“It has enhanced my career by providing me with collaborations that would never have occurred using traditional channels,” she said.

“It has connected me with leaders in diverse specialties from all over the world, and it has also provided me with wonderful friendships.”



“It was also a new experience for me to have people that I had never met, not only interested in what I had to say, but also congratulatory. It was empowering and restored my confidence that my knowledge and viewpoint were valued.”

RESEARCH FELLOWSHIP AWARDED TO BETTER UNDERSTAND RECTAL CANCER

A three-year early career research fellowship has been awarded to Dr Pascal Steffen (pictured) who will undertake his research into rectal cancer in the Bowel Cancer and Biomarker Laboratory at the Kolling Institute.

About 5000 people are diagnosed with rectal cancer each year. The aim of Dr Steffen’s Cancer Institute NSW fellowship is to understand the involvement of immune cell infiltration in rectal cancer, how this impacts on tumour biology and how it affects patient outcomes.

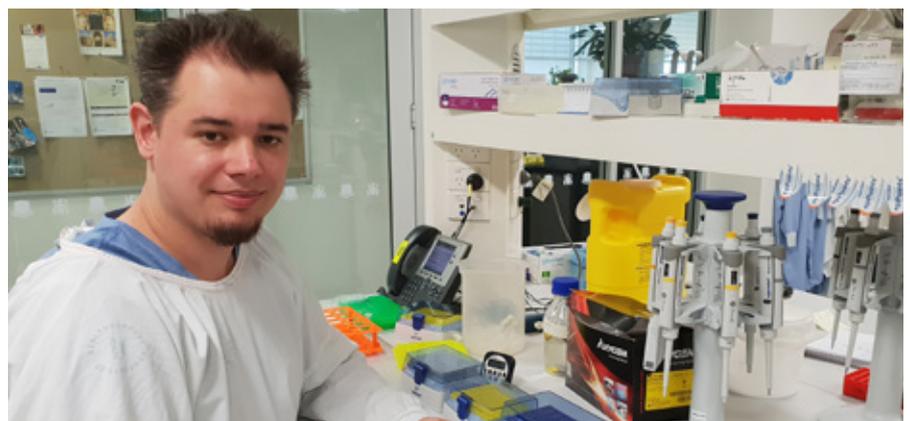
Over the next three years, Dr Steffen, who is from Hamburg, Germany, will use a mass spectrometer, funded by Bowel Cancer Australia and The University of Sydney, to examine the proteome of rectal

cancers stored in specimens from the Royal North Shore Hospital.

He hopes to characterise rectal cancer proteomes at unprecedented depth and link this information to patient prognosis. The outcome of this research will lead to new prognostic biomarker panels, provide a better understanding of immune cells in rectal

cancers and pave the way for new treatments.

Dr Steffen was recruited to the newly formed Bowel Cancer and Biomarker Laboratory, established by the Lawrence Penn Chair of Bowel Cancer Research, Professor Mark Molloy in 2018.



OVARIAN CANCER RESEARCHER GIVES TALK AT NATIONAL GYNAECOLOGICAL CONFERENCE

Ovarian Cancer researcher Dr Emily Colvin (pictured) was an invited speaker at the 2019 Annual Scientific Meeting of the Australian and New Zealand Gynaecological Oncology Group (ANZGOG).

ANZGOG is the peak, national gynaecological cancer clinical trials organisation for Australia and New Zealand.

Its purpose is to improve outcomes and quality of life for women with gynaecological cancer, through conducting and promoting clinical trials and undertaking research into the causes, prevention and treatments of gynaecological cancer.

The theme of the 2019 meeting was “Radical Treatments for

Gynaecological Cancers: hope or hype?” and featured leading national and international experts in gynaecological cancer management and research.

Dr Colvin, who is from the Bill Walsh Translational Cancer Research Laboratory, spoke about her research characterising cancer associated fibroblasts in ovarian cancer. These cells provide structural support to the cancer.

Her research suggests that these cells also influence the aggressive and metastatic nature of the cancer and may provide new ways to help control this cancer.

More information about Dr Colvin’s research can be found at: <https://www.bwcancerresearchlab.org.au/research/ovarian-cancer/>



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