



Australian  
Breast Cancer  
Research



# Research Update

2014 Edition 2

## Lighting the Way to a Breast Cancer Cure



Aneta is investigating how we can use the body's immune system to fight breast cancer which has spread to the bone.

"There is so much going on in our bodies that we just don't see or really think about," marvels breast cancer researcher Aneta Zysk.

It's this fascination with biology which has inspired Aneta to pursue a career in medical research. In addition to her interest in the human body Aneta, like many of us, has been touched by cancer.

"My uncle suffered with colorectal cancer – when he was diagnosed they only gave him six weeks to live, the cancer had spread and it was end stage," recalled Aneta.

"He didn't even make it to six weeks – it was really sad. I saw the suffering and pain that he and his family went through and it reinforced to me that I wanted to help people suffering with cancer through my work."

Aneta is playing a vital role in achieving this as a member of the Breast Cancer Research Unit at the Basil Hetzel Institute for Translational Health Research.

*continued page 2*

## Paris to Geneva for Breast Cancer Research

ABCR supporter Liam cycled an amazing 550kms over four days from Paris to Geneva, raising more than \$2,500 for breast cancer research.

Originally from Melbourne, Liam is currently living and working in the UK and took on the challenge with some of his colleagues.

"We cycled from the Eiffel Tower through Paris into the fields of wheat and sunflowers of rural France for the first three days."

"As luck would have it it didn't stop raining once, it was very very wet!"

The ride culminated on day 4 when the team crossed the

beautiful Jura mountains; their biggest challenge.

"We worked through some gentle rolling hills up to the base of a climb, the hair-pin bends of the Col de la Faucille (1323m) - a climb that has featured many times in the Tour de France."

"After long days in the saddle and a challenging day in the Jura the rain finally cleared away and I was very happy to see Geneva and its beautiful lake."



Liam raised more than \$2,500 for breast cancer research - an amazing effort.

*continued page 2*

>from page 1

"We topped off an amazing 4 days celebrating with plenty of cold beer!"

Liam chose to support ABCR through his ride as he's had friends, family and family of friends diagnosed with breast cancer in the past.

"Most recently, a good friend of mine was diagnosed. She has subsequently had a mastectomy and undergone several chemotherapy sessions and is doing really well, but I know that more research will go even further to better understand this horrible disease, prevent and detect it in the future."

"I thought that this event, despite all the fun I had, was a great opportunity to raise funds for a disease which affects us all directly or indirectly."

Liam raised an outstanding total of £1,455.60 (approx. \$2,598AUD).

"I have been truly humbled through this whole experience as I did not for one moment think I would have raised such a large amount of money for ABCR. As they say, every little bit helps and I know this will."

"I have a sneaky suspicion I might just go and do this all again next year!"

*If you would like to raise funds for breast cancer research just like Liam please visit our website for more information.*



*Liam said his cycle was an opportunity to support research into a disease which affects us all.*

## Lighting the Way to a Breast Cancer Cure

>from page 1

"My PhD project is looking at how we can use the body's immune system to fight breast cancer which has spread to the bone," explained Aneta.

"There is a rare population of immune cells within our blood called gamma delta T-cells that can specifically target and kill cancer cells."

"As there are not normally enough of these cells to kill the cancer, I'm working on isolating these cells in the lab and growing them to increase their numbers."

"I have fluorescently labelled these cells so that when we use them in vivo, we can actually visualise the path they are travelling – we can see if the cells are going directly to the tumour site or elsewhere."

In an exciting finding, Aneta has seen these cells travel directly to cancer in the bone.

"We know from previous research that these cells have cancer-killing properties in vitro, so this indicates they will most likely be successful at killing cancer cells in vivo," said Aneta.

Cancer cells have mechanisms that enable them to avoid the immune system, but the special gamma delta T-cells which Aneta is growing in the lab are able to bypass that system and can still detect the cancer cell regardless.

Aneta is using a state-of-the-art IVIS Spectrum In Vivo Imaging Machine to undertake her project, which was purchased with the help of Australian Breast Cancer Research last year. This exciting project would not have been possible without it.

"Normally when cancer research is done in vivo, researchers use instruments to measure tumour size to determine if their therapy is impacting on tumour growth," explained Aneta.

"Because I am looking at breast cancer when it has spread into the bone, we physically can't use the instruments to measure the tumour."

"So what I do is tag the cancer cells so they emit light and the amount of light we can see with the machine is proportional to the size of the tumour – if there is a decrease in the amount of light being produced then we know the tumour size is decreasing."

So far using this technique, Aneta has found that the cells can slow down cancer growth in the bone and decrease the spread to other parts of the body like the lungs.

"The next step for my work will be to increase their natural cancer killing properties by using them in combination with other therapies so they can kill cancer even more effectively."

"It's exciting work and I am very pleased to be a part of what could be a potentially life-saving treatment for people with breast cancer, and other cancers which spread to the bone."



**The Longest Table - Save the Date!**

Have dinner with friends to fight cancer on Saturday June 20 2015.

Visit [www.thelongesttable.com.au](http://www.thelongesttable.com.au) to get the latest!

# Women Preventing Breast Cancer

When faced with a breast cancer diagnosis and a mastectomy, no one would blame a woman for withdrawing into themselves, but according to Dr Pallave Dasari, many of these women can't do enough for research into the disease.

Women having breast surgery at The Queen Elizabeth Hospital and Calvary Hospital in Adelaide are asked by Dr Dasari to donate their breast tissue to the Breast Biology and Cancer Unit's Breast Tissue Bank.

"I've found the women experiencing breast cancer can't do enough for the research effort. I actually find it amazing how generous and kind they are when they're dealing with a lot of stress themselves," she said.

Dr Dasari finds women undergoing breast reduction surgery are more than happy to help with the research effort as well.

The tissue is collected from surgery, and is assessed by a pathologist before healthy breast tissue is passed to the researchers. Then Dr Dasari prepares the tissue for storage for later analysis, this includes a process which enables preserving the tissue for more than 50 years to allow future studies.

The aim is to take a snap shot of what cells are doing at that time and what chemical messages there are.

"Let's say we've got tissue from a 60-year-old woman and

tissue from a 30-year-old woman, what are the differences between snapshots that their breast tissue can tell us?"

"We're really keen to understand normal, healthy breast tissue. There's something about the breast that's really sensitive to developing cancer."

Dr Dasari is also looking at the immune environment in the breast and how it responds to a woman's lifestyle and how it is affected by her hormone cycles.

Epidemiologists say certain lifestyle factors can increase or decrease the likelihood of breast cancer, so women involved in the study fill out comprehensive surveys about their life and health.

"If we can understand the normal physiology of the breast that leads to cancer, and link it to what the epidemiology is saying then hopefully we can work out how to prevent breast cancer."



*Dr Dasari says the Breast Tissue Bank could fast track breast cancer prevention.*

## A Timely Mammogram for Michelle

At age 43, Michelle McCready discovered she had breast cancer through her very first mammogram.

"We moved to Australia, to Dalby in Queensland from New Zealand on 31 December 2011 and I went in May for my mammogram thinking all would be routine," explained Michelle.

"A week later I was called up to have a biopsy, so still in a relaxed mode thought it was no big deal. But a few

days later I got the call to say I had been booked in to see the surgeon at Toowoomba Base Hospital."

In the meantime, Michelle was reading up on Ductal

Carcinoma in Situ (DCIS). For those who don't know, DCIS it is often described as a pre-invasive or pre-cancerous disease. A diagnosis of DCIS means that some cancerous cells are contained within the milk ducts of the breast.

"When the results came back I already knew what the surgeons were going to say, I needed a mastectomy."

After her operation Michelle went home, looking at her x-rays she could see her left breast was riddled with cancerous cells – a scary sight.

"But both of our wonderful families shared the load with me having to take weekly trips to Toowoomba for radiation. I stayed in the Olive McMahon lodge during the week and came home on weekends. I rested and slept and read, trying to give my body the best chance."

"Some people don't consider DCIS as cancer but I believe that you don't need a lump to have cancer brewing in there," said Michelle.

"I am so lucky to have caught this early before lumps developed."

"I hope I can help others by sharing my story."

You can read the full version of Michelle's story on our website: [www.abcr.com.au/personal-stories](http://www.abcr.com.au/personal-stories)



*Michelle's family were extremely supportive throughout her diagnosis and treatment.*

## Does elective mastectomy really improve breast cancer survival?

You may have read in the media recently that the number of women who are opting to have a mastectomy of the unaffected breast following a breast cancer diagnosis is increasing.

We spoke to breast cancer researcher Dr Eleanor Need about this topical issue. Here she explains more about several recent reports, which estimate the survival benefit to women diagnosed with early breast cancer undergoing mastectomies on the unaffected breast.

“Making the choice to have their unaffected breast removed, even though their cancer is confined to one breast, is a very personal decision for women,” explains Dr Need, from the Breast Biology and Cancer Unit at the Basil Hetzel Institute for Translational Health Research.

“The cosmetic aspects of having the breast removed, such as the desire to have both breasts look the same is not as important to most women as worry about survival.”

But a recent study in the US of nearly 19,000 women found no increase in survival in women who had their unaffected breast removed in comparison to removal of the cancer combined with radiotherapy.

It seems that in electing to have their unaffected breasts removed, some young women may be overestimating the risk of getting cancer in the unaffected breast, which statistically, is not high.

Observations of large numbers of women diagnosed with early breast cancer have found that those with an initial diagnosis of breast cancer are only slightly more likely to be diagnosed with breast cancer in the previously unaffected breast than the general population.

Dr Need explains, “To put these findings in perspective, in one older trial investigating 6,241 women with an early breast cancer diagnosis, researchers found roughly one in every 20 women got breast cancer in the unaffected breast over a 10 year period, and these cancers were rarely life-threatening.”

Having the unaffected breast removed reduces the chance of developing breast cancer in this breast by 90%, but doesn't completely eliminate it.

But as Dr Need states “It's important to note that for some women who have had a breast cancer diagnosis and are undergoing treatment, cancer-related anxiety is understandable. So apart from the minimal survival benefit of removing the unaffected breast, the procedure may provide peace of mind to some women who are diagnosed with breast cancer.”

*It is important to note that studies on Australian women's choices with regards to removal of the unaffected breast are currently lacking. For women who carry the BRCA1/2 gene mutation, or have a strong family history of breast cancer, the link to survival of a complete mastectomy is more strongly established. Women should consider all of the benefits and the risks of mastectomy for their personal situation in consultation with a medical team when contemplating the procedure.*

## Supporter Shorts...

When Kym's close friend Lisa was diagnosed with breast cancer, she witnessed firsthand the emotions that Lisa and her family had to endure.

Kym, who has run in the Bridge to Brisbane three times, knew that when the time came to register for the 2014 run she would be running for Lisa.



“This was my small way of letting her know what an inspiration she has been in the way she has handled everything and that I will always be there for her.”

Kym's workplace, MGI South Qld, generously paid her registration fee, along with anyone who wanted to join her on the run.

Thankfully Lisa is now doing well and on the way to full health once again.

“Life is what you make it and our friends and family are what keep us going. I will be running again next year and hope to continue to do so for a while yet.”

We would like to thank Kym for her amazing efforts. She has raised over \$1,000 for vital breast cancer research.

135 guests gathered at the Amora Riverwalk Hotel in Melbourne in July for the inaugural Leaders and Lattes fundraising dinner for ABCR.



“We wanted to make sure we donated to a research organisation and we chose ABCR because they do such amazing work, starting at the very beginning in terms of finding a cure but also studying how treatments can be improved for sufferers,” said Founder and CEO of Leaders and Lattes Julie Hyde.

For Julie, there is also a personal connection to the cause.

“One of my very close friends is just recovering from breast cancer. Watching her go through such brutal treatment was heartbreaking. She still continues to battle.”

Julie said the event's success superseded her wildest expectations, booking out to capacity and raising a wonderful \$5,377 for breast cancer research.

“The night was lots of fun and there was a fantastic energy in the room, which is pretty normal when you get a group of women together to support the sisterhood and a great cause!”

Australian Breast Cancer Research is a disease specific affiliate of The Hospital Research Foundation. We fund vital breast cancer research at the Basil Hetzel Institute for Translational Health Research.