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Brisbane Breast Bank

Building research resources to fight breast cancer for all generations



UQCCR Breast Cancer Research Newsletter, March 2019

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2018 Consumer Meeting

In the spirit and tradition of **breast cancer awareness month**, on Thursday 4th October, we hosted our most successful consumer affiliate meeting since the inaugural event in 2009.

More than 80 people attended, including research staff and students, RBWH clinicians, RBWH breast care nurses, BreastScreen staff and many breast cancer survivors, supporters and advocates. While there is still far more community outreach to do, we are delighted that word is spreading about who we are, and what we do at the UQCCR & RBWH. Each year these meetings are lifting the diversity.

Seven inspirational Pink Snapdragons (pictured above, with Professor Sunil Lakhani and Dr Jodi Saunus) were hard to miss in their magenta paddling attire! The Dragon Boat Club from Redcliffe presented a donation of more than \$13,000 to support breast cancer research at the UQCCR.

Brisbane Breast Bank

Consenting and collection has been ongoing since 2005 and we have now consented over 2650 patients with 2450 having had blood collection and 1595 that have had fresh tissue collected. We have collected 13 samples from patients with brain metastasis. This year has seen a new collaboration with the RBWH plastics unit come to fruition to collect normal breast tissue from women undergoing Reduction mammoplasty surgery. The BBB continues to provide samples and data to many projects both domestic and internationally and to date has supplied 60 different projects which has resulted in 38 publications.

Circ Br (Circulating Biomarkers of Relapse in Breast Cancer)

In March 2013, the BBB began recruiting patients for a prospective blood collection study. We follow up high grade patients every 6 months during their outpatient visits to collect 30mls of blood that are analysed for circulating biomarkers. This study aims to detect breast cancer before symptoms present and hopefully aid the development of targeted therapy for breast cancer treatment. To date we have recruited 365 patients, with 45 patients having 4 years of follow up.

We also distribute Quality of Life questionnaires to each patient at this 6 monthly mark. The post diagnosis recovery is as important in the acute phase of breast cancer management and identifying emotional, functional, physical and social impacts can provide valuable insights for improved clinical management. We are grateful to the 250 participants who have undertaken our surveys, and we now have close to 50 participants who have continued to participate for four years.



Colleen Niland & Kaltin Ferguson

Research project updates

Metaplastic Breast Cancer

Through the collective efforts of the Asia-Pacific Metaplastic Breast Cancer Consortium, a large set of metaplastic breast cancer samples was accumulated for our study. We have looked at the morphology, genome and biomarker expression across all the cancers and made some interesting findings. Importantly, an increasing number in the different types of growth pattern that were present in the cancer was associated with a negative outcome on patient survival. We propose that pathologists should be recording the amount of variability in growth pattern at the time of diagnosis in the pathology reports.

Contact: Dr Amy McCart Reed

Lobular Breast Cancer

Our lobular breast cancer project has been evolving over many years. We have recently studied 'mixed ductal lobular carcinomas', which is a type of breast cancer diagnosed in up to 5% of patients. Our work has given us a greater understanding of how this type of cancer arises. We have now generated a prognostic signature – or 'genetic test', which we believe can inform which patients diagnosed with invasive lobular carcinoma can be relieved of chemotherapy and other aggressive treatment protocols. We have designed a program of research to validate our test ('LobSig'), and were fortunate to receive funding from the NHMRC this year to continue our research until December 2021.

Contact: Drs Pete Simpson and Amy McCart Reed

Familial Breast Cancer

In a large study funded by the National Health and Medical Research Council we have been performing whole genome sequencing on breast cancers arising in patients with a strong family history of disease. This study has given new insight into the cause of breast cancer in some families, as well as telling us that we can use this method of analyzing a cancer to tell us whether a patient with hereditary breast cancer could be given specific types of therapy.

Contact: Dr Pete Simpson



The **BoNSAI** trial has now reached key milestones leading up to recruitment of patients with brain metastatic breast cancer.

The study will generate important information about how unique blood perfusion patterns in the brain affect the uptake of drugs into metastatic tumours. Making use of state-of-the-art MRI and PET imaging technology in the Herston Imaging Research Facility, it is the first study of its kind to be conducted in Brisbane. We hope to conduct intervention trials using the BoNSAI framework in future.

Contact: Dr Jodi Saunus

PETAL study

PETAL is a new RBWH trial testing the benefit of preoperative FDG-PET imaging for planning breast surgery. The depth of axillary dissection required to remove all diseased lymph nodes is predicted from the particular type of breast cancer. It is also partly determined in theatre – surgeons sequentially remove nodes based on 'frozen section' results communicated from Pathology while patients are still under anaesthesia.

It is hoped that presurgical imaging will achieve the same or better accuracy than this, allowing us to build a case to standardise the approach, thereby reducing anaesthesia time and the potential for excessive lymphedema. It could also help hospitals to operate more efficiently.

Contact: Dr Kowsi Murugappan / Ms Colleen Niland

Conference presentations

The 2018 Cooperative Trials Group for Neuro-Oncology (COGNO) meeting was held in Brisbane, Oct 7-9.

- Dr Priyakshi Kalita-de Croft was selected to present a talk about her work on proteomics analysis of the metastatic brain tumour microenvironment.
- PhD student Malcolm Lim was selected to present a poster about using nanotechnology approaches for detection and treatment of brain metastases.

Drs Amy McCart Reed, Peter Simpson and Jodi Saunus presented the group's work at the San Antonio Breast Cancer Symposium in December (San Antonio, Texas, USA).

6 posters were presented at the annual RBWH Symposium

Selected recent scientific publications

-Phenotypic and molecular dissection of metaplastic breast cancer and the prognostic implications, McCart Reed et al. *Journal of Pathology*

-Breast cancer metastasis to gynaecological organs: a clinic-pathological and molecular study, Kutasovic et al *Journal of Pathology; Clinical Research*

-CEP55 is a determinant of cell fate during perturbed mitosis in breast cancer, Kalimutho et al. *EMBO Mol Med*

-Expression of MAGE-A and NY-ESO1 cancer/testis antigens is enriched in triple-negative breast cancers, Raghavendra et al *Histopathology*

-Secreted cellular prion protein binds doxorubicin and correlates with anthracycline resistance in breast cancer, Wiegman et al. *JCI Insight*

-Whole-genome sequencing reveals clinically relevant insights into the aetiology of familial breast cancers, Nones et al *Annals of Oncology*.

Out and About



Colleen Niland and family raised awareness of the Brisbane Breast Bank at the annual RBWH fun run by sporting our logos!



Kaltin Ferguson and Dr Priyakshi Kalita-de Croft both attended the Breast Wishes Ball which raised money for The Brisbane Breast Bank and research into BRCA gene

For more information visit <https://clinical-research.centre.uq.edu.au/lakhani-group>

The UQCCR Molecular Pathology Group is grateful for funding and support from our sponsors.



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