



## BRISBANE BREAST BANK (BBB)

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### Background

Our principle focus is to obtain a better understanding of breast carcinoma using molecular and cellular techniques. This was the prime motivation for establishing the tissue bank as the availability of clinical tissue samples is imperative for the success of translational cancer research. The Brisbane Breast Bank was established in June 2005, by Professor Sunil Lakhani's Breast Pathology Laboratory in conjunction with the University of Queensland, Royal Brisbane and Women's Hospital Breast Unit and Pathology Queensland.

### Biospecimen Collection

Patients undergoing breast surgery are invited to become donors to the bank. With consent, the diagnosing pathologist will pass any excess tissue provided by the surgeon to the tissue bank. The bank also collects blood samples from consented patients to match the tissue. Each sample is de-identified by providing it with a unique code to ensure patient privacy. Sample and medical information is stored in a secure database, accessed only by authorised Breast Bank Personnel. To date the bank houses over 65,000 individual blood and tissue aliquots.

### Current Resources

Total	2005 - Current
Patients Consented	3268
Frozen Tissue Samples Collected	1909
Blood Samples Collected	3130

**Table 1. Summary of Patient Sample Collection**

The Brisbane Breast Bank holds a large collection of samples from breast cancer patients, linked to relevant medical information (Table 1.). The Bank also collects normal breast tissue samples from patients undergoing reconstructive plastic surgery and brain metastasis tissue samples from patients undergoing surgery at the Royal Brisbane and Women's Hospital. The success of the Breast Tissue Bank is dependent on the co-operation and support of many individuals and departments.

All tissue samples collected are frozen and some fresh tissue collected is processed to generate primary cells, RNA and DNA for various research projects. A matching FFPE block is also created for each frozen tissue sample. As a part of the tissue bank's quality control assessment. An anatomical pathologist performs research specific internal review on this piece of tissue, to ensure that the material is suitable for research.

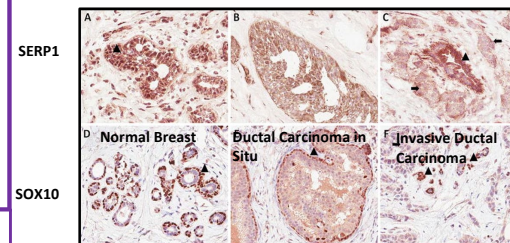
**Circ.BR:** As part of the BBB all high grade cancer patients are recruited to participate in a prospective study that ties in with their routine 5-year clinical follow-up period. Consenting breast cancer patients will donate excess tissue (primary tumour and recurrence/metastasis) and serial blood samples every 6 months to the Brisbane Breast Bank for research. In this study we will analyse serial blood samples to try and understand how breast tumours in some patients are able to spread and subsequently grow in organs such as the lungs, liver or bones. This metastatic spread of disease causes 90% of all cancer deaths.

**REDcap Database:** In conjunction with the RBWH Breast and Endocrine Unit we have assembled a comprehensive clinical history of all consented patients from 2005 to present including, pathology, treatment history (chemo, rad and surgical) and demographics, adding further value to Tissue bank samples.

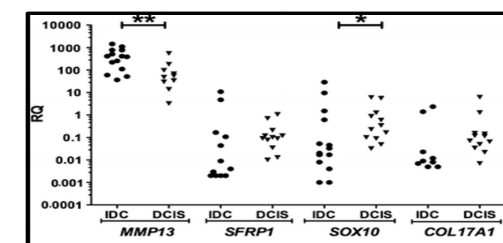
### Contribution to Research

Brisbane Breast Bank has contributed resources to over 70 breast cancer research projects both locally, nationally and internationally; including those of the International Cancer Genome Consortium (ICGC) led by the Sanger Institute (Cambridge, UK) and the Ludwig Institute for Cancer Research (NY, USA). It has also contributed to our own research funded by the National Health and Medical Research Council (NHMRC), National Breast Cancer Foundation (NBCF), Royal Brisbane Women's Hospital Foundation and Cancer Council Queensland. The tissue samples collected as fresh frozen or the FFPE diagnostic blocks have been used in various types of experiments (Figure 1).

#### Immunohistochemical Analysis on FFPE Sections (Vargas et al., 2011)



#### Gene Expression Analysis via Real-Time PCR using RNA extracted from Frozen Tissue Samples (Vargas et al., 2012)



Whole Genome Sequencing of  
DNA extracted from Frozen  
Tissue Samples (ICGC,  
Cambridge, UK)

### Acknowledgements

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