- **FINAL PROJECT REPORT**

- ***Date: 22 January 2014***
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- ***Name:***

Professor Ann Richardson, Professor Bridget Robinson, Dr Logan Walker, Dr Margaret Currie, Mrs Helen Morrin, Professor Elisabeth Wells, Professor John Potter

- ***Project Title:***

Cytomegalovirus and Epstein-Barr virus in breast cancer

Please copy the "Specific Objective(s)" statement, entered on your application form, in the space below.

Objective
To undertake a 12-month project to compare cytomegalovirus (CMV) and Epstein-Barr virus (EBV) genetic material in 70 paired samples of breast cancer tissue and normal breast tissue using quantitative polymerase chain reaction (QPCR).

Hypotheses
1. There will be higher levels of CMV genetic material in breast cancer tissue DNA compared with normal breast tissue DNA.
2. Relative to CMV, the ratio of EBV genetic material in breast cancer tissue DNA to normal breast tissue DNA will be lower.
3. CMV genetic material will not be present in the tissue of CMV IgG seronegative women.
4. EBV genetic material will not be present in the tissue of EBV IgG seronegative women.

Briefly describe how successful you were in achieving the stated objective(s). If the objective(s) was not achieved, explain why that is the case and describe what you did manage to achieve.

On 18 March 2013 we received approval from the Board of the Christchurch Cancer Society Tissue Bank to extract the required samples from the tissue bank. On 27 March 2013 we received ethics approval from the University of Otago Ethics Committee (which reviews all research related to the Christchurch Cancer Society Tissue Bank) to undertake the proposed research.

An inter-university contract was set up between the University of Canterbury and the University of Otago, Christchurch, to administer the funds for this joint project.

We selected 70 breast cancer cases with each sample set consisting of frozen tumour, normal breast tissue and a serum sample from each female donor. The tumours are all Infiltrating Ductal Carcinomas NST (the most common breast cancer type) with a range of grades and oestrogen, progesterone and Erb-2 (Her2) receptor status. We included 6 normal frozen breast tissue specimens from female donors who have had no breast cancer.

DNA from all the samples was extracted and purified using a GeneJET™ Viral DNA and RNA Purification Kit, which is compatible with downstream molecular analysis. The serum samples were tested for CMV and EBV IgG antibodies, and the tissue samples have been tested for evidence of CMV and EBV DNA using quantitative PCR.

Briefly describe any interesting outcomes which might not have been considered in your original objectives (if any).

Our research team met on 15 January 2014 to discuss the results of these analyses, to plan further analysis of some samples, and to discuss the key points to be included in the draft manuscript reporting our results. We will now prepare a manuscript and submit it to be considered for publication in a peer-reviewed scientific journal.

Acknowledgement
We are grateful to the Canterbury Medical Research Foundation for funding our project through a grant from the Neil and Pearl Hamilton Trust. We will be happy to provide further information if required.