Abstract
Decorin is a small Leucine rich proteoglycan that has been shown to have important functions in the inhibition of tumor growth in various cancers including prostate cancer. This study aims to analyse decorin levels in prostate tissues and identify any correlations between the expression decorin and levels of malignancy of prostate cancer. Immunohistochemical staining was used in this experiment to identify the expression of decorin in the tissues followed by statistical analysis. The association found in this study shows that as the level of malignancy in the tissue increase the expression of decorin decreases, the reverse association is also observed.

Introduction
The current issue facing diagnosis of prostate cancer is overtreatment. This stems from the problem of clinicians only being able to observe limited features of the cancer such as tumor size or glandular disturbances. From these gross histological assessments it is difficult to observe the biological behavior of the cancer and predict its future progress. Decorin is a proteoglycan that has established functions in suppressing tumor growth (Timar et al. 2002). Because of decorin’s involvement in tumor progression, it hoped that by the expression levels of decorin could serve as a possible biomarker to indicate tumor progression on a molecular level. This study aims to determine whether there is a meaningful correlation between expression levels of decorin and the level of malignancy in prostate cancer. By analyzing the expression
patterns of decorin in the tissues and clinicopathological parameters used to mark malignancy, it is hoped that this correlations surfaces through any associations between the expression of decorin and the level of malignancy as indicated by the parameters. With a clear and significant correlation between the expression levels of decorin and the level of malignancy, we would be able to conclude if decorin can be used as a prognostic marker in prostate cancer.

**Material and Methods**

Immunohistochemical staining was the main procedure done to observe the expression levels of decorin. The greater the stain the higher the levels of decorin. The level of expression was measured in terms of a Weighted Average Index, Immuno Reactivity Score and the total percentage of the tissue stained. From this, t-test and chi-square statistical analysis was used to see if there was any significant association between the expression and levels of malignancy measured by clinicopathological parameters of the patients.

**Results and Discussion**

The results of this study showed a clear and significant association between expression of decorin and the level of malignancy. At a high level of malignancy as indicated by the clinicopathological parameters of the patients, there is lower expression of decorin. Conversely, at a low level of malignancy, there is higher expression of decorin (indicated in graphs 1-6) This is clearly seen in all the statistical analysis where all the 3 measures of decorin expression levels (WAI/IRS/Total Percentage Stained) stained produced statistically significant results for the same clinicopathological parameter – Gleason Score and also produced significant results with Pathological Staging, Perineural/Lymphovascular invasion and pre-PSA levels. These parameters, as mentioned in the introduction are important for the prediction of
poor outcome in patients. Hence because of the significant correlation between decorin expression and these parameters, it may be possible for decorin also to serve as a prognostic tool. Because of its known functions in tumor suppression, decorin has been studied as a treatment in other cancer, thus another postulation includes the possibility of also using decorin as a treatment in prostate cancer. However, future functional analysis must be done before this postulation can be confirmed.

Graph 1. Percentage of Tissue with \( WAI > 1 \)

Graph 2. Percentage of Tissue with \( WAI \leq 1 \)

Graph 3. Percentage of Tissue with \( IRS > 25 \)

Graph 4. Percentage of Tissue with \( IRS \leq 25 \)

Graph 5. Percentage of Tissue with Total Percentage Stained >25

Graph 6. Percentage of Tissue with Total Percentage Stained \( \leq 25 \)
Acknowledgments:

I would like to thank Dr George Yip for all his support throughout this project and my family without who all this would not have been possible.

References