

The Prostate Cancer Research Consortium, which brings together (under Molecular Medicine Ireland and funded by the Irish Cancer Society) clinicians and scientists to deliver a trans-institutional, multi disciplinary collaborative translational research prostate cancer programme, has **four PhD studentships** available as part of its recently renewed programme to test the hypothesis that **the existing bioresource can be used to learn dependencies between biomarkers from pre-operative serum, urine and tissue and post-operatively confirmed insignificant and significant prostate cancer.**

**The programme is offering the following four PhD studentships:**

**Image Analysis** – Lead: Professor Pdraig Cunningham (co-investigators: Professor Elaine Kay, Professor John O’Leary and Dr Stephen Finn)

Building on our developed texture feature selection tools we propose to identify additional unique features in full and biopsy sections of prostate cancer testing the hypothesis that unique image features exist that can distinguish between patients with insignificant and significant disease.

**DNA Hypermethylation** – Lead: Dr Antoinette Perry (co-investigators: Professor Donal Hollywood, Dr Laure Marignol, Professor John O’Leary)

Cancer is driven by progressive genetic and epigenetic abnormalities. The identification of methylation events early in prostate carcinogenesis that correlate with potentially aggressive tumours may identify those patients at higher risk of tumour progression and in addition highlight patients with indolent tumours. The objectives of this study are to further develop a prostate cancer methylation panel validating genes identified previously through our *in silico* mining strategy and other work package collaborators.

**Integrated mRNA and miRNA signatures** – Lead: Professor John O’Leary (co-investigators: Professor Orla Sheils, Dr Stephen Finn, Professor Stephen Pennington)

Increasingly mRNA and miRNAs are recognized as biomarkers in prostate cancer. miRNA profiling can be implemented successfully in blood samples and other bodily fluids with clear relevance to the development of novel non-invasive tests. We hypothesize that integrated miRNA and mRNA profiling along with other biomarker will help to distinguish between significant and insignificant prostate cancer.

**Protein Glycoforms** – Lead: Professor Richard O’Kennedy (co-investigators: Professor Pauline Rudd, Dr Radka Fahey, Professor William Watson, Dr Antoinette Perry)

Based on our previous data we hypothesise that it is not only the differential expression of proteins but also their altered glycosylation patterns that helps to distinguish between different forms of prostate cancer. We propose to develop techniques to isolate and selectively differentiate specific PSA isoforms and other glycosylated proteins using recombinant antibodies. The isolated glycoproteins will be analysed to identify differential glycosylation. This represents a significant discriminatory enhancement in terms of current approaches to distinguish between significant and insignificant prostate cancer.

***We are looking for candidates with degrees in Computer Science, Molecular Biology, Biochemistry, Cell Biology or closely related disciplines.***

Applicants with a 2.1 or higher BSc or equivalent degree should forward a 2 page CV, letter of interest (clearly stating why they have chosen this programme and could contribute to its delivery) and two letters of support from their referees to Professor William Watson ([william.watson@ucd.ie](mailto:william.watson@ucd.ie)) by email (with “PCRC PhD application – *applicant’s name*” in the subject line) by **29<sup>th</sup> June, 2011**. Short listed candidates will be called for interview in mid July with a start date of the 1<sup>st</sup> October, 2011.

Visit <https://pcrc.tchpc.tcd.ie/node/58> for a copy of our five year report

