



**PROSTATE  
CANCER UK**

## Grant type

Phd Studentship

## Grant Round

2014

## Reference Number

S14-003

## Lead Applicant

Dr Joanne Edwards

## Research Title

Validation of AR81 and AR213 as prognostic markers and therapeutic targets in advanced prostate cancer.

## Research Cost

£99,758.00

## Lay title of project

New ways to treat advanced prostate cancer

## What are you proposing?

When men are diagnosed with advanced prostate cancer, they're usually given a hormone treatment that acts on a protein in the cancer cells called the androgen receptor. This is successful to start with, but the cancer eventually starts to grow again, and for many men this results in their death. Enzalutamide and abiraterone are both new drugs that have recently been approved for use in these patients, which extend survival in some men, but don't work for everyone. In this project we will try to find new ways of turning the androgen receptor off and preventing further prostate cancer growth. We will look at specimens from men with prostate cancer and try to separate out those men who responded to the drugs from those who didn't by looking for differences in certain biological markers (proteins or genes) between the groups.

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## Why are you proposing it?

Being able to tell which men will respond to which new prostate cancer drugs would mean that the right drugs are given to each patient. This would maximise the effects of the treatment, whilst avoiding side effects in those men who would not benefit from the drug.

While these drugs still cannot cure advanced prostate cancer, we hope that greater understanding of why existing treatments are more successful in some patients than others will allow identification of new ways to treat this disease.

## How are you proposing to do it?

We will perform laboratory tests on stored prostate cancer samples to see if the tumour markers that we have developed can predict how long a patient will survive and whether or not their cancer will respond to the new drugs.

We will also use cancer cells grown in the laboratory and prostate cancers grown in mice to see if we can find a new way to block the androgen receptor that will stop prostate cancer growing and spreading, even in those men who no longer respond to hormone therapy.

## What evidence or supporting data do you have to support this project?

We have demonstrated that the markers we identified can divide men in to two groups: those who will live for more than two years, and those who will die within two years after their cancer has relapsed. These markers could be used to provide information to predict how well a man will do after treatment, but we first need to confirm these observations in a new group of patients.

We also have evidence from cell studies to show that if we reduce the levels of these markers, some tumour cells die and tumour growth slows down. Finding new drugs to manipulate these markers and stop them working could open new avenues to treat high-risk prostate cancer.

## How long will it take?

36 months

## What are the expected outcomes?

We hope that the long term impact of this work will be as follows:

1. To provide information to doctors to help them predict whether a man with prostate cancer is likely to need further treatment or not, and which drug he should be treated with. This will identify the right men for treatment and save many men from unnecessary side effects.

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2. To identify a new way to treat advanced prostate cancer

## **How could it make a difference to the lives of men affected by prostate cancer?**

Our results could help to save many men with prostate cancer from unnecessary treatment as they will gain no benefit from the drugs.

For those men who do need treatment, our results will help to show which drugs will be most effective for them.

Our results may change the information given to men with prostate cancer when urologists tell them what to expect from their disease.

## **Please write a summary of the project in one sentence only.**

This project aims to help establish new ways to treat advanced prostate cancer after hormone therapy stops working.

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Prostate Cancer UK is a registered charity in England and Wales (1005541) and in Scotland (SC039332). Registered company number 2653887.