PROSTATE CANCER UK

Grant type

Pilot Grant

Grant Round

Pilot Grants 2014

Reference Number

PA14-034

Lead Applicant

Professor Myra Olga McClure

Research Title

Next Generation Sequencing to investigate a viral aetiology of prostate cancer in men of African and African-Caribbean origin and in families from these groups

Research Cost

£74,867.00

Lay title of project

Does virus infection play a role in the development of prostate cancer in men of African and African-Caribbean origin?

What are you proposing?

We will look for a virus in African and African-Caribbean men and particularly in men with a family history of prostate cancer from this ethnic group. Scientists have been looking for a link between infection and prostate cancer for the last 30 years, but haven't found one yet. Now technology has advanced to the stage where it's possible to look at RNA level (RNA is a type of genetic material - an intermediate stage that translates the DNA 'instructions' into proteins that carry out those instructions) for evidence of any viral infection.

Why are you proposing it?

One in four Black men will get prostate cancer. In around 10%, the disease will cluster in families, suggesting that either infection or genetic predisposition is important for prostate cancer development in these families. If a viral connection is found this opens up the possibility of virus screening before the cancer develops, the possibility of anti-viral treatment and the offer of protective vaccines against the virus in the long-term.

How are you proposing to do it?

We are going to analyse the RNA from two groups of patients; one with prostate cancer and a control group without using a newly available technique called next generation sequencing. After discarding the human genetic sequences we will to compare the sequences in each group to see if there are any viral genetic sequences in the cancer and control groups to see if a virus (a known virus or a variant of a known virus) might be associated with prostate cancer in this population group. . We'll look for differences in viral sequences between cancer and control groups, and again see whether this can tell us anything about why African and African-Caribbean men are at high risk of prostate cancer.

How long will it take?

Prostate Cancer UK has funded a pilot study over 12 months to see if there are any indications to suggest that a definitive study should be carried out. If the indications are encouraging, it would take 2-3 years to identify definitively a virus with the disease state. It will take longer to produce screening assays and arrange clinical trials of antiviral treatment, since there are few antivirals on the market.

What are the expected outcomes?

Two outcomes are possible; either we'll identify viral sequences or we won't. If we do find viral sequences, we will then investigate a much larger sample of patients to determine if the virus really does play a key role in prostate cancer development. If this can be demonstrated, we can start looking into the possibility of virus screening, and anti-viral treatment for men with prostate cancer.

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

Establishing a relationship between a specific tumour and an infectious agent, such as a virus, offers the potential to develop a protective vaccine. The perfect example of this is cervical cancer and HPV. The results of this research could greatly benefit the African and African-Caribbean population in the future with the development of antiviral treatment.

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

We aim to determine if virus infection can explain why African and African-Caribbean men are at higher risk of prostate cancer than white men.