UPDATE

Prostate Cancer Research

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Delivering more effective treatments in more men

DNA patterns predict the right drug

Following the successful – and proven – development of his new ProCASP tool, we have awarded Dr Harveer Dev's research team an extra grant to continue their research into making cancer treatments work more effectively.

'We are tremendously excited to work with PCR to deliver ProCASP; the prostate cancer CRISPR-Cas9 dynamic Screening Platform... Our project represents an important step towards delivering personalised care and improving outcomes for patients with lethal disease.'

Dr Harveer Dev
Principal Investigator
UNIVERSITY OF CAMBRIDGE

Start date: November 2020

Duration: 18 months (pilot project); 36 months (extension), with quarterly evaluations

The research at a glance

1. Our bodies are made up of cells. DNA writes the code that makes our cells.
2. Both cancer and healthy cells are created and controlled by their DNA.
3. DNA Damaging Agents (DDAs) are drugs that can kill prostate cancer cells by damaging their DNA.
4. Radiotherapy, most forms of chemotherapy and new treatments like PARP inhibitors are examples of DDAs.
5. Currently, DDAs work very well in some people, but not in others.
6. It isn't clear who should be taking DDAs and who should not; with more understanding, DDAs could help more patients.

DDAs: will they work for you?

DDAs are showing great promise in patients with advanced prostate cancer. Recent clinical trials suggest that PARP inhibitors, a type of DDA which were originally only thought to be effective in a small group of people, may be effective for a larger set of patients. This could be a game-changer for men with advanced prostate cancer, but we still don't completely understand why they work for some people and not others.

Harveer updates PCR patient representatives, trustees and staff at the 2020 Meet the Scientists event.

Harveer's idea

Harveer and his team think that there might be patterns in our DNA that can help us identify the best treatment type for each person. This means that those people who will benefit can be treated with DDAs immediately and those who won't benefit can avoid unnecessary side effects. Using established patterns to predict a person's response to different combinations of treatments could also enable even more patients to benefit from DDAs.

The risk

To carry out their research, Harveer and the team had to create a new technique to make changes to the DNA in prostate cancer cells taken from patients. Performing their experiments on cells taken from men during biopsies or prostate removal means the results should better reflect real-world outcomes.

However, the use of patient cells also meant the project was risky. Previous attempts to grow cells from patients in the lab have not always been successful, so Harveer's team had to come up with a new way to do this, as well as developing the genetic tool to make the DNA changes.

Beating the odds

Our first grant to the scientists funded the development of their new technique. Despite the risks, the scientists beat the odds and successfully created their new technique, proving that they can use it to make changes to the DNA of prostate cancer cells. Now that Harveer and his team have proven that it works, they will use their method to see which DNA patterns can be used to predict responses to specific treatments.

What will this mean for patients?

Harveer's research will enable more patients to benefit from DDAs, including PARP inhibitors. Doctors will be able to identify which therapy will work best for each patient in the clinic, and new combination therapies will be available to treat advanced prostate cancer. Ultimately, this new approach will save lives.

We are delighted to award the team an additional grant for the next three years to progress further towards a clinical application of ProCASP. We look forward to sharing their achievements with you in the future.

BLOCKING PROSTATE CANCER SIGNALS

The cells in our body need to be able to communicate with each other so that they can work together and react to any changes to the environment. They do this using something called cell signalling. The Wnt pathway is a set of cell signals that play a key role in prostate cancer. Wnt signals are released by cells and taken up by surrounding cells, causing them to grow and move uncontrollably. This can result in cancer growth and spread.

Dr Helen Pearson and Dr Toby Phesse are investigating whether drugs blocking the Wnt signals could be used to attack prostate cancer and offer new treatments to people who have no other options. Their experiments on tissue in the lab found that blocking these signals stops the cells that drive cancer growth and spread from working in bone, liver and lung. For patients with advanced prostate cancer, this development could offer more personalised therapy and treatment.

Go to The Prostate Pod on Spotify to hear directly from the researchers:
https://open.spotify.com/episode/38b7UeWad0iWAxbEDzAnWY

'WHAT TO EXPECT: A GUIDE TO PROSTATE CANCER' WEBINARS

During the summer of 2022, PCR and Ipsen delivered a free webinar series for people affected by prostate cancer. The webinars were designed for patients, family members, caregivers and anyone wanting to know more about prostate cancer. The eight, hour-long sessions helped viewers get to grips with both diagnosis, disease stages and treatment options.

'Timely for those of us with a recent diagnosis, [the webinars] helped me in confirming that my treatment choice was appropriate and rational.'

Webinar viewer

'I've just seen a man and his partner to tell him he has prostate cancer; she told me she has a good idea of what to expect because she binge-watched the webinars. They are on their way home to watch the webinar about treatment together.'

Clinical Nurse Specialist

These webinars can be viewed at:
pcr.org.uk/what-to-expect