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Gene testing helps guide prostate treatment

Testing prostate cancer patients for inherited mutations in key DNA repair genes could identify men who may benefit from new precision treatments, a new study has revealed



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A team at the [ICR](#) [6] and [The Royal Marsden](#) [7], along with cancer centres in the USA, used a saliva test to analyse the DNA code of 20 genes known to have a role in DNA repair in 692 men with advanced prostate cancer.

Of these men, 12% had at least one 'germline' mutation – an error that is either inherited or developed before birth – in a DNA repair gene.

The most commonly defective gene was BRCA2, which was mutated in 5% of men. Those who have these mutations may benefit from PARP inhibitors, which are drugs that exploit weaknesses in how cancer cells repair DNA.

The study opens up the possibility that relatives of those studied with BRCA2 mutations could also be tested for mutations. More research is needed to clarify the role of the other DNA repair genes in causing prostate cancer.

12%

of advanced prostate cancer patients tested had at least one 'germline' mutation in a DNA repair gene

5%

of men tested had a mutation in their BRCA2 gene

[Professor Johann de Bono](#) [8], Professor of Experimental Cancer Medicine at the ICR and Consultant Medical Oncologist at The Royal Marsden, who led the study in the UK, said that along with developing new precision treatments for those with BRCA2 mutations, 'we could also offer genetic testing and counselling to relatives of the patient to consider how we can reduce their cancer risk.

'We also need to establish the impact of having DNA repair defects on survival in men with prostate cancer, and whether we can predict who will develop severe disease, so we can design new treatment strategies to cure this disease.'

The study is the largest of its kind to date, and the first to comprehensively analyse germline mutations in men with advanced or metastatic prostate cancer

The study received funding from the Prostate Cancer Foundation, Stand Up to Cancer, Movember, Prostate Cancer UK, Cancer Research UK, the Medical Research Council and the NIHR Biomedical Research Centre at The Royal Marsden and the ICR.

Further reading

- [Inherited DNA-Repair Gene Mutations in Men with Metastatic Prostate Cancer](#) ^[9]
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