



Understanding genetic testing in Prostate cancer

You have received this leaflet because a member of your cancer care team has made a decision to discuss genetic testing with you.

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What is genetic testing?

What is a gene?

Genes are a set of instructions for cells in the human body

It is becoming more common for men with prostate cancer to be offered genetic testing

Genetic testing – sometimes called genomic testing – finds changes in genes that can cause health problems. These changes are often referred to as genetic variants. In cancer, genetic testing can be used to look for certain genetic variants which can tell us something about your cancer including:

- What your risk of developing cancer is (hereditary risk)
- Whether your cancer is more or less aggressive (prognostic)
- Whether your cancer might be susceptible to specific treatments (predictive)

Genetic testing can either be a blood test or a tumour test; both provide different information:



- A blood test can be used to detect “**germline variants**”
- Germline variants are faults in genes which are present in every cell of your body and are there from birth
- If you have a germline variant it will have been passed onto you from a parent. This is known as the variant being ‘hereditary’ or ‘inheritable’



- A tumour test is used on tumour tissue which has been collected either from a biopsy sample or after surgery and can be used to detect “**somatic variants**”
- Somatic variants only occur in the tumour itself and are not inherited
- A somatic (acquired) variant will have occurred ‘by chance’ during your life

For more information please visit the NHS website:

- <https://www.nhs.uk/tests-and-treatments/genetic-tests-for-cancer-risk/>



- <https://www.nhs.uk/conditions/genetic-and-genomic-testing/>



Which genetic tests are used in prostate cancer?

In prostate cancer, BRCA testing may be offered to patients. Knowing your BRCA status means that your doctor may be able to tailor your treatment plan for your type of cancer.

Additionally, knowing your germline BRCA status allows doctors to determine if your family members are also at increased risk of developing prostate cancer.

BRCA testing

BRCA is a gene (BReast Cancer gene). There are two forms of BRCA gene, *BRCA1* and *BRCA2*. These genes are responsible for helping cells repair themselves and preventing cancer development. Faults in either of these BRCA genes can increase the risk of developing some cancers

Genetic testing is offered to see if you are carrying a BRCA variant. The result of this test is often described as 'finding out your BRCA status'.

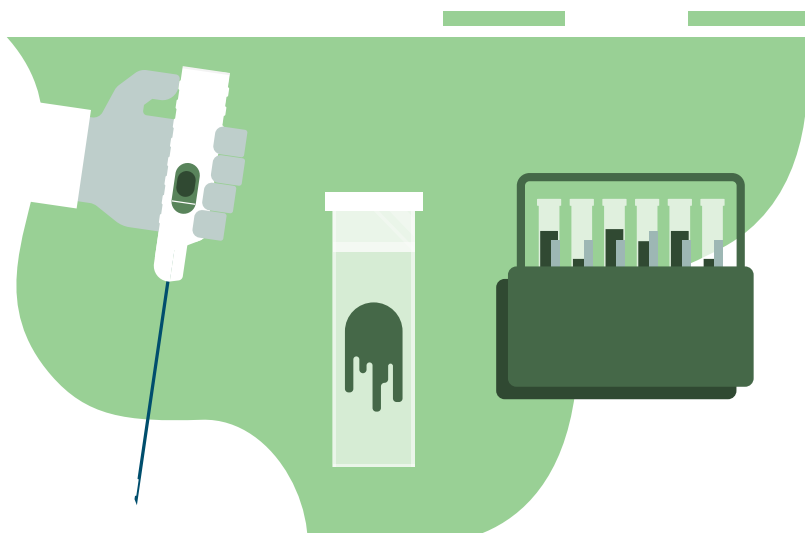
Variants in BRCA can be both germline (found in all cells) or somatic (found only in tumour cells) and approximately 1 in 10 men with prostate cancer have a *BRCA1* or *BRCA2* variant.

If the results of your germline test detect a *BRCA1* or *BRCA2* variant, this means your relatives may also carry the BRCA variant. Depending on the results, other members of your family may be offered germline BRCA testing, but this is a personal decision for each individual.

How do you perform genetic testing?

If your healthcare professional thinks you have prostate cancer, a small piece of tissue from your tumour will be taken during a biopsy or surgery. If you agree (known as providing consent), the same sample can be used for genetic testing which can identify BRCA variants.

This type of test (a tumour test) will identify if your tumour has a BRCA variant. Note that this type of genetic testing on tumour samples will not tell if you or your family have an inherited risk of cancer, which will need to be tested separately.



How do I consent to genetic testing?



Before you undergo genetic testing, it is important that your healthcare professional explains the test and the possible consequences of the test results to you. This is so that you can fully understand the procedure, including the intended benefits and any possible risks. This is called informed consent. Once your healthcare professional has explained the test to you, you can let them know verbally whether you are happy to have the test.

What support can I get if I need to have genetic testing?

Genetic counsellors can provide you and your family with support if needed

Your cancer care team will talk to you about genetic testing and what the results of these tests mean. This is not the same as genetic counselling. If you think you would like genetic counselling too, then talk to your cancer care team about this.



What happens after my genetic testing?

The testing lab should return your results to your healthcare team within approximately 8 weeks. Your healthcare team will discuss the implications of your genetic testing results with you and may also involve a genetic counsellor, if appropriate.

Where can I find support?

There are several UK charities who provide support to anyone affected by prostate cancer

These charities offer telephone support, face to face or email support groups, patient hubs, leaflets and resources:



**PROSTATE
CANCER UK**

<https://prostatecanceruk.org>



**MACMILLAN
CANCER SUPPORT**

<https://www.macmillan.org.uk/>



tackle
prostate cancer

<https://tackleprostate.org/>



These organisations are independent patient support groups and AstraZeneca and MSD are not responsible for the content of their websites. The organisations have not been involved in the development of this material.

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