Information Leaflet

Liverpool Women's NHS Foundation Trust

ATM Gene alteration

The *ATM* gene

ATM is a gene that we all have. Having an alteration in the ATM gene can increase the chance of breast cancer. The chance is affected by:

- Age
- Sex
- Family history
- Other factors e.g., lifestyle, hormonal history.

Chance of breast cancer

In the UK, breast cancer affects approximately 1 in 7* women and people assigned female at birth during their lifetime. Most of these people are aged over 60. It is very rare for men and people assigned male at birth to develop breast cancer.

*Cancer Research UK (2015) estimated lifetime risk of being diagnosed, people born after 1960.

If a genetic test shows that you have an ATM gene alteration your chance of developing breast cancer will be assessed. Women and people assigned female at birth may have a higher-than-average chance; this is likely to be a moderate chance but could be a high or very high chance. This can be due to the specific gene alteration, family history, and/or other factors.

More research could show that people with an ATM gene alteration have a higher-than-average chance of developing other types of cancer, but currently there is no evidence for this.

NB: Test results are *reported based on current knowledge. Very occasionally, new information in the future may mean that our understanding of the significance of a specific gene variant may change.*

Anyone with an ATM gene alteration can take part in research.

Cancer Risks and Management Options

Risk category	Lifetime chance of breast cancer	Breast screening	Risk reducing options
Moderate	17-30%	Annual mammograms between the ages of 40-49 National Breast Screening Programme age 50+	Can consider chemoprevention
High	30-40%	Annual mammograms between the ages of 40-59 National Breast Screening Programme age 60+	Can consider chemoprevention and risk reducing mastectomy
Very high	40% and above	Annual MRI and/or mammograms between the ages of **30-69 National Breast Screening Programme age 70+	Can consider chemoprevention and risk reducing mastectomy

** In some cases, breast screening may start at age 25

How is the *ATM* gene alteration inherited?

We all have two copies of every gene including *ATM*. One copy is inherited from each of our parents. If we have children, we only pass on one copy of each of our genes in each pregnancy.
If an individual with an *ATM* gene alteration has children, there is a 50% (1 in 2) chance their *ATM* gene alteration could be passed on. There is also a 50% (1 in 2) chance their children could inherit the typical copy of the parent's *ATM* gene.

If someone with an *ATM* gene alteration has a partner who also carries an *ATM* gene alteration, then there is a 25% (1 in 4) chance that both parents could each pass on an *ATM* gene alteration to a child. This leads to a rare condition known as ataxia telangiectasia (AT). This condition causes enlarged blood vessels under the skin, uncoordinated movements, and other neurological symptoms. However, the chance of someone in the general population carrying an *ATM* alteration is low.

What can I do to help improve my health?

We encourage people to not smoke, to be a healthy weight, to eat less red and processed meat, to not drink too much alcohol and to exercise regularly. Doing these things can all help to reduce the chance of developing many types of cancer.

You should also report any changes in your breasts to your GP. If you have a personal or family history of breast cancer you should discuss this with your GP before taking hormone replacement therapy.

Where can I get further information?

The AT (ataxia telangiectasia) Society is a registered charity that support people who have two *ATM* gene alterations resulting in AT. Their website provides information and

resources for people with this condition. Within the genetic aspects of AT section on their website, you can also find information about being a carrier of one *ATM* gene alteration.

Are there any research studies for *ATM*?

The Epidemiological Study of Familial Breast Cancer (EMBRACE) aims to identify risk factors contributing to the development of cancer in people with an inherited cancer gene alteration. If you are interested in discussing the possibility of participating in any research studies, please ask your Genetic Counsellor or Doctor.

This leaflet is for people who have appointments at

Liverpool Centre for Genomic Medicine
Liverpool Women's Hospital NHS Foundation Trust
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This leaflet can be made available in different formats on request. If you would like to make any suggestions or comments about the content of this leaflet, then please contact the Patient Experience Team on 0151 702 4353 or by email at pals@lwh.nhs.uk

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