

Genes and Cancer: An Overview



Note: Biomarker and genomic testing look at genetic mutations within a tumor, whereas genetic testing looks at inherited genetic mutations. While the information below can be helpful for all individuals, it is primarily geared towards those with inherited cancer genetic mutations.

Disclaimer: The purpose of this handout is to educate, inform and build connections among participants. The handout does not constitute medical or other professional advice or services. It is not a substitute for professional care by a doctor or other qualified medical professionals and is not intended for use in the diagnosis or treatment of individual conditions. The mention of any product, service, organization, activity or therapy should not be misconstrued as an endorsement.

DEFINITIONS:

Gene

A trait passed down from a parent to their child. When a harmful mutation in a cancer gene is inherited, that person has a higher chance of getting cancer.

Pathogenic Variant

A harmful gene mutation that raises a person's chance of having a genetic condition.

Hereditary Cancer Syndrome

A genetic condition that increases a person's risk of getting certain types of cancer. Hereditary cancer syndromes are caused by pathogenic variants in specific cancer genes that can be passed down in families.

Biomarker

A biological molecule found in cells or tissues. Biomarkers sometimes help diagnose a disease, such as cancer. A biomarker may also be used to see how well the body responds to treatment for a disease.

Targeted Therapy

Drugs that find and attack cancer cells. Targeted therapies usually have fewer side effects than traditional cancer treatments. This is because targeted therapies only kill cancer cells with a unique biomarker (and do not kill healthy cells).

Tumor Sequencing

Genetic testing that is done on cancer cells. This type of testing is usually done to find if targeted therapies can help treat a person's cancer.

Germline Genetic Testing

Testing done on normal cells of the body using a saliva or blood sample. This type of testing will tell someone if they have a hereditary cancer syndrome.

Genetic Counselor

A healthcare professional who talks to people who are at risk for inherited conditions. Cancer genetic counselors can arrange genetic testing and talk about options to prevent cancer or find it early when treatments are more likely to be successful.

Previvor

A person with a hereditary cancer syndrome who has not yet had cancer. Previvors often take action to lower their chance of getting cancer.

Cascade Testing

The process of testing other family members after the first family member was found to have a pathogenic variant in a cancer gene. Cascade testing often begins by testing close family members (adult children, brothers, sisters, parents). Then if they have the pathogenic variant their close family members are tested.

Prophylactic Treatment

A treatment given or action taken to prevent or lower a person's risk for disease. Prophylactic treatments include surgery or medicine that can help prevent cancer.

GETTING STARTED:

[Cascade Testing](#)

[Hereditary Cancer, Genetic Testing, and You](#)

[About Genetic Counseling](#)

[Find a Genetic Counselor](#)

MUTATION/SYNDROME-SPECIFIC RESOURCES:

[FORCE Genes by Cancer Type](#)

[AMEND USA \(MEN 1, 2, and 3\)](#)

[Alive and Kick'n \(Lynch Syndrome\)](#)

[BHD Foundation \(Birt-Hogg-Dubé Syndrome\)](#)

[BRCA and Cure Alliance \(BRCA1 and 2\)](#)

[Fanconi Cancer Foundation \(Fanconi Anemia\)](#)

[HLRCC Foundation \(Hereditary Leiomyomatosis and Renal Cell Cancer\)](#)

[Lynch Syndrome International \(Lynch Syndrome\)](#)

[Mayberry Memorial \(Lynch Syndrome\)](#)

[PTEN Hamartoma Tumor Syndrome Foundation \(PTEN Hamartoma Tumor Syndrome\)](#)

[RETPositive \(RET\)](#)

[STK11 \(PJS\) - Smart Patients Peutz-Jeghers Syndrome Support Group \(STK11\)](#)

[LFS Association \(TP53/Li Fraumeni Syndrome\)](#)

[Living LFS \(TP53/Li Fraumeni Syndrome\)](#)

[VHL Alliance \(VHL\)](#)



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