Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

About the Multi-Gene Panel Test for Hereditary Colorectal Cancer and Polyposis

This information explains the multi-gene panel test for hereditary colorectal cancer (colon and rectal cancer) and polyps. It also explains how your results may affect you and your family.

In this resource, the word “family” means people related to you by blood. They’re not related to you through marriage or adoption. We also call these family members your blood relatives.

This multi-gene panel test is done to check your DNA for gene mutations linked to hereditary colorectal cancer and polyposis. Colorectal polyposis is a condition when a person has many polyps in their colon or rectum. Polyps are growths of tissue that are not cancerous but can sometimes become cancer.

Normally, these genes help prevent cancer. A mutation in these genes causes them to stop working like they should. This raises your risk for some types of cancers. Having a mutation does not mean you will definitely get cancer.

For more information, read
Hereditary Colon Cancer and Polyposis
- www.mskcc.org/genetics/colon-cancer-polyposis

What is a multi-gene panel test?

We can test for mutations 1 gene at a time or many genes at the same time. A multi-gene panel test is when we test many genes at once using the same saliva or blood sample. By testing many genes at once, it may be possible to find a

hereditary cause of cancer more quickly.

What happens if I have a mutation?

Your genetic counselor will review your results. They will talk with you about what cancer(s) your mutation is linked to. As we research these mutations, we may learn they raise the risk for other types of cancers.

Your genetic counselor will also review your personal and family history of cancer and give you cancer screening recommendations. They may recommend you start having cancer screenings at a younger age or have them more often than most people. They may also suggest you get specialized screenings to help find cancer as early as possible.

Some examples of these cancer screenings include:

- Colonoscopies starting at an earlier age and more often than most people.
- An upper endoscopy (a procedure that lets your doctor see inside your stomach and small intestine).
- An ultrasound, computerized tomography (CT) scan, or both.
- Breast magnetic resonance imaging (MRI) scans and mammograms (X-rays of your breast).

Depending on which gene mutation(s) you have, your genetic counselor may also talk with you about having surgery to try to keep cancer from developing. For example, they may recommend:

- Surgery to remove your breasts to prevent breast cancer.
- Surgery to remove your uterus to prevent uterine (endometrial) cancer.
- Surgery to remove your ovaries to prevent ovarian cancer.

If you decide to have surgery, talk with your genetic counselor about the right time to have it. Surgery to remove the uterus or ovaries affects fertility (your ability to have biological children). If you plan to have biological children, your genetic counselor can talk with you about your options.

If you're having surgery for colon cancer or polyps, your genetic counselor may recommend you have extra colon tissue removed to prevent colon cancer.

What happens if I do not have a mutation?

If you do not have a mutation or if we find a variant of uncertain significance (VUS), your genetic counselor will review your personal and family history of cancer. They'll talk with you about the general cancer screening guidelines you should follow.

A VUS is a change in a gene, but we don't yet know if it is linked with a higher risk for cancer. Most VUS are eventually found to be normal changes that do not affect your health.

What does a gene mutation mean for my blood relatives?

Most of the mutations we test for are passed down in a dominant pattern. This means you only need to inherit the mutation from 1 parent to have a higher risk for cancer. Males and females have an equal chance of passing down a mutation in their family.

If you have a mutation in 1 of these genes, it's possible that other blood relatives have it too. There's a 50% chance your biological parents, siblings, and children also have the same mutation.

Your distant family members may also be at risk for having the same mutation. It may be helpful to share this information with them. This includes aunts, uncles, nieces, nephews, and cousins.

Your genetic counselor will review your family history and talk with you about whether they recommend genetic testing for your blood relatives.

The *MUTYH*, *NTHL1*, and *MSH3* genes are passed down in a recessive pattern. This means you need to inherit these mutations from both parents to have an increased risk for cancer. People who inherit just one recessive gene mutation from one parent typically don't have a higher risk of getting cancer.

Contact information

If you have any questions or concerns, talk with a genetic counselor in the Clinical Genetics Service. You can reach them Monday through Friday from 9 a.m. to 5 p.m. at 646-888-4050.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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