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# Hereditary Cancer Multi-Gene Panel Testing

## What is multi-gene panel testing for hereditary cancer?

About 5-10% of cancer is hereditary, meaning that it is caused by an inherited mutation in a single gene. Genetic testing can help determine if you were born with a gene mutation that predisposes you to develop cancer in your lifetime.

**Multi-gene panel testing analyzes multiple hereditary cancer genes for a mutation simultaneously.** Panel testing is now available for genes that can cause hereditary colorectal, breast, ovarian, uterine, gastric, and pancreatic cancer, among others. Finding a mutation in one of these genes can provide information about your cancer risks and guide medical management for you and your family members.

## Who should consider a multi-gene panel?

You may be a good candidate for hereditary cancer genetic testing if you have a strong personal and/or family history of cancer. This may include more than one cancer in an individual, cancer onset at younger ages, and certain patterns of cancer in the family.

### **You should consider a multi-gene panel if:**

- More than one hereditary cancer gene could explain your history, and you want to learn about multiple cancer genes and their associated risks.
- You previously had negative genetic testing for a specific cancer syndrome, but your personal or family history still suggests a hereditary cause.
- You had genetic testing prior to 2013, when multi-gene panel testing became widely available.

**A genetic counselor can help you determine what type of genetic testing is most appropriate for you.**

**+** *I previously had negative BRCA gene testing.*

### **Should I consider a multi-gene panel?**

Approximately half of hereditary breast cancer is caused by mutations in the *BRCA1* and *BRCA2* genes. In the last several years, mutations in more than two-dozen other genes have been determined to contribute to breast cancer risk. A multi-gene panel test may identify a mutation in one of these genes that could explain your personal and/or family history of breast and related cancers.

# + What are benefits and limitations of multi-gene panel testing?

## Benefits

**-Efficient:** With multi-gene testing, many genes can be analyzed at the same time using just one blood or saliva sample. Multi-gene panels often cost the same as single-gene testing.

**-Comprehensive:** If your personal and/or family history of cancer is due to a hereditary gene mutation, analyzing more cancer genes makes it more likely that the mutation will be found. This is especially helpful if more than one cancer gene could explain your history.

**-Direction:** If a mutation is found on your panel test, this result could be used to guide your medical management. Your family members may also carry the mutation. Once the specific mutation causing cancer in your family is known, family members can be tested for that mutation to give them information about their own cancer risks and management.

## Limitations

**-Limited evidence:** For some newly described genes, the associated cancer risks have not been well defined. Some genes do not yet have established medical management guidelines. These risks and guidelines will likely be established in the future as more is learned about these cancer genes.

**-Uncertainty:** Sometimes the laboratory is not able to classify a finding as positive or negative. In these cases, there is not enough information to determine if the identified change increases your cancer risk or is just part of normal human variation. The larger the panel, the more likely it is to find these uncertain results. Over time, more evidence will help reclassify these gene changes as disease causing or benign.

**-Unexpected results:** Sometimes a mutation is found in a gene that was not expected based on the family history. A genetic counselor or other specialist can help you understand what this mutation means for you and your family.

**-Evolving technology:** Panels are likely to change over time as more becomes known about hereditary cancer genes. A negative panel test result does not completely rule out a hereditary cause for your cancer since not all cancer genes are currently known. It is important to keep in touch with a genetics provider who can update you about changes in testing technology and management recommendations.

## How can I learn more about multi-gene panel testing for hereditary cancer?

A genetic counselor who specializes in cancer can talk with you about your cancer risks and genetic testing options. You can learn about the St. Vincent Cancer Genetic Risks Assessment Program at [www.stvincent.org/cancergenetics/](http://www.stvincent.org/cancergenetics/) or find a cancer genetic counselor in your area by visiting <http://nsgc.org/p/cm/ld/fid=164>

