

GENES TESTED WITH INVITAE HEREDITARY COLORECTAL CANCER PANELS

Invitae has extensive testing options, with results available in just 10–21 days on average.

- Invitae Lynch Syndrome Panel (5 genes)**
- Invitae Colorectal Cancer Guidelines-Based Panel (up to 20 genes)**
- Invitae Colorectal Cancer Panel (up to 28 genes)**
- Customized test options**

GENES TESTED:

- | | |
|---------------------------------|--------------------------------|
| <input type="checkbox"/> APC | <input type="checkbox"/> MUTYH |
| <input type="checkbox"/> AXIN2 | <input type="checkbox"/> NTHL1 |
| <input type="checkbox"/> BMPR1A | <input type="checkbox"/> PMS2 |
| <input type="checkbox"/> CDH1 | <input type="checkbox"/> POLD1 |
| <input type="checkbox"/> CHEK2 | <input type="checkbox"/> POLE |
| <input type="checkbox"/> EPCAM | <input type="checkbox"/> PTEN |
| <input type="checkbox"/> GREM1 | <input type="checkbox"/> SMAD4 |
| <input type="checkbox"/> MLH1 | <input type="checkbox"/> STK11 |
| <input type="checkbox"/> MSH2 | <input type="checkbox"/> TP53 |
| <input type="checkbox"/> MSH3 | <input type="checkbox"/> _____ |
| <input type="checkbox"/> MSH6 | |

NOTES:

SIMPLE BILLING, NO SURPRISES

WITHIN THE UNITED STATES

INSURANCE

Invitae will work directly with your insurance company to coordinate coverage and payment. Regardless of whether our laboratory is in-network or out-of-network with your insurance provider, Invitae is committed to making genetic testing affordable. Typically patients pay no more than \$100 out of pocket for one of our tests. If you receive a bill for more than \$100, please call us at 800-436-3037 to discuss payment options. For testing related to a personal or family history of breast, ovarian, colorectal, or uterine cancer (also referred to as HBOC and Lynch syndrome), Invitae offers an out-of-pocket cost estimator, accessible at www.invitae.com/patient-billing.

PATIENT PAY

You have the option to pay \$250 for your hereditary cancer genetic testing. This option requires upfront payment before test results are released. In addition, your clinician must place the order online and provide your e-mail address so we can send you a link to pay online using a credit card.

MEDICARE & FINANCIAL ASSISTANCE

Invitae accepts Medicare and Medicaid. We may also be able to offer testing at limited or no expense to those who qualify for need-based assistance.

For further information, please contact Client Services at clientservices@invitae.com or 800-436-3037.

OUTSIDE THE UNITED STATES

PATIENT PAY

You have the option to pay \$250 for your hereditary cancer genetic testing. This option requires upfront payment before test results are released. In addition, your clinician must place the order online and provide your e-mail address so we can send you a link to pay online using a credit card.

INSTITUTIONAL BILLING

Invitae will work with your institution to set up a contract if one is not already in place.

For complete billing information, please visit www.invitae.com/billing.

This guide applies only to gene and panel testing; for exome testing please see the Invitae exome patient guide.



INVITAE

Understanding hereditary colorectal cancer

THE GENETICS OF HEREDITARY COLORECTAL CANCER

Colorectal cancer is the third most commonly diagnosed cancer in both men and women. Approximately 5 to 10 percent of patients with colorectal cancer have a pathogenic genetic variant that increases their risk of developing the disease. Hereditary colorectal cancer is generally divided into two types:

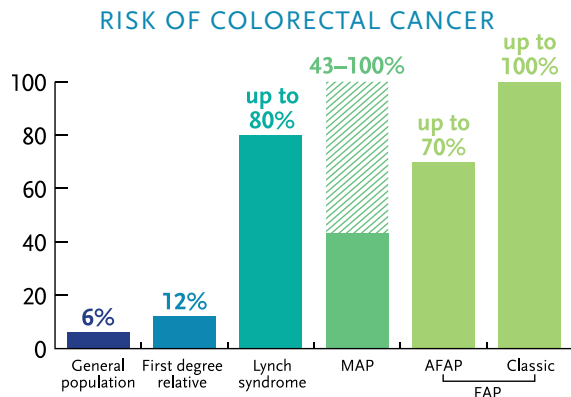
LYNCH SYNDROME

Lynch syndrome (also known as hereditary nonpolyposis colorectal cancer syndrome) is the most common cause of hereditary colorectal cancer. Approximately 1 in 400 people have a genetic variant which can cause Lynch syndrome. These variants can increase a person's lifetime risk of developing colorectal cancer up to 80 percent and can also increase the risk of developing other cancers including uterine, ovarian, stomach, pancreatic, and kidney cancer.

POLYPOSIS SYNDROMES

Polyposis syndromes are characterized by the development of numerous precancerous polyps (small clumps of cells that forms on the lining of the colon). Polyposis syndromes that can be inherited include familial adenomatous polyposis (FAP), which is caused by a variant in the APC gene; attenuated familial adenomatous polyposis (AFAP), which is a subtype of classic FAP; and MUTYH-associated polyposis syndrome (MAP), which is caused by a variant in the MUTYH gene. Genetic variants in genes related to polyposis syndromes can also increase the risk of other cancers including stomach, small bowel, pancreatic, and thyroid cancer.

Reference: National Cancer Institute, The genetics of colorectal cancer. www.cancer.gov/types/colorectal/hp/colorectal-genetics-pdq. Accessed August 11, 2015.



References: American Cancer Society; PMID: 20301390, 25070057, 23035301, 19620482, 18063416, 19822006, 1673441.

WHO SHOULD CONSIDER GENETIC TESTING?

Genetic testing may be appropriate if you have:*

- colorectal cancer diagnosed before age 50
- more than one type of cancer, including colorectal cancer
- a high number (10 to 1000 or more) of precancerous colorectal polyps
- 3 or more individuals on the same side of your family with cancers that may suggest an inherited cancer syndrome, such as colon, rectal, stomach, thyroid, uterine, ovarian, or pancreatic cancer

NOTES:

Learn more at www.invitae.com/patients.

*Recommendations based on: National Comprehensive Cancer Network®, Clinical Practice Guidelines in Oncology: Colon Cancer, version 3.2015. Accessed September 2015. National Comprehensive Cancer Network®, Clinical Practice Guidelines in Oncology: Rectal Cancer, version 3.2015. Accessed September 2015.

WHAT ARE THE BENEFITS OF TESTING?

If you have an elevated risk of developing cancer based on your genetic test result, you can work with your healthcare provider to create a plan designed to prevent a cancer entirely, or help to identify a cancer at an earlier, more treatable stage.

In addition, genetic testing can help:

- provide an explanation for your personal or family history of cancer
- evaluate your risk of developing future cancers
- make informed medical decisions, including treatment, surveillance, and preventive options
- qualify you for participation in clinical trials or research studies
- identify other at-risk relatives for whom genetic testing is recommended

WHAT ARE THE POTENTIAL RESULTS?

POSITIVE

If testing identifies a variant known to increase your cancer risk, consult with your doctor to create a screening and management plan and to identify relatives who may need to be tested.

NEGATIVE

If testing identifies no variants known to increase cancer risk, your future risk depends on your personal medical history and family history of cancer. This does not rule out other genetic conditions; consult with your doctor to discuss surveillance recommendations.

VARIANT OF UNCERTAIN SIGNIFICANCE

In some cases, testing can identify a variant, but it is not known at this time whether the variant increases the risk for cancer. In this case, your cancer surveillance recommendations should be based on your personal and family medical histories.