GENES TESTED WITH INVITAE HEREDITARY GYNECOLOGIC CANCER PANELS

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

- Invitae Breast and Gyn Cancers Guidelines-based Panel (19 genes)
- Invitae Breast and Gyn Cancers Panel (up to 35 genes)
- Invitae Hereditary Breast and Ovarian Cancer Syndromes Panel (2 genes)
- Invitae Lynch Syndrome Panel (5 genes)
- Customized test options

GENES TESTED:

- ATM
- BARD1
- BRCA1
- BRCA2
- BRIP1
- CDH1
- CHEK2
- DICER1
- EPCAM
- MLH1
- MSH2
- MSH6
- NBN
- NF1
- PALB2
- PMS2
- PTEN
- RAD50
- RAD51C
- RAD51D
- SMARCA4
- STK11
- TP53
- __________

NOTES:

SIMPLE BILLING, NO SURPRISES

WITHIN THE UNITED STATES

INSURANCE

You won’t need to contact your insurance company to find out if testing is covered or to obtain reimbursement; Invitae will work directly with them to coordinate coverage and payment. 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 to discuss payment options. We’re here to help ensure you have full access to your genetic information.

PATIENT PAY

You have the option to pay $475 for your hereditary cancer genetic testing. This option requires upfront payment before testing begins. 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 $475 for your hereditary cancer genetic testing. This option requires upfront payment before testing begins. 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.
THE GENETICS OF GYNECOLOGIC CANCERS

Gynecologic cancers include those of the ovary and uterus. About 1.3% of women will develop ovarian cancer and 2.7% will develop uterine cancer. Most cases of gynecologic cancers are sporadic and not inherited; however, approximately 5%-10% of gynecologic cancers are inherited.

Variants in two genes, BRCA1 and BRCA2, account for the majority of hereditary ovarian cancer cases in women with a strong family history or an early-onset diagnosis. These variants can increase your lifetime risk by up to 54%. Lynch syndrome is the most common inherited cause of uterine cancer.

LIFETIME CANCER RISKS

A genetic variation in BRCA1 or BRCA2 and/or Lynch syndrome genes can increase the likelihood that a person will develop not just gynecologic cancer, but also several other types of cancer in his or her lifetime.

<table>
<thead>
<tr>
<th>BRCA GENES</th>
<th>Ovarian Cancer</th>
<th>Uterine Cancer</th>
<th>Breast Cancer</th>
<th>Colorectal Cancer</th>
<th>Pancreatic Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRCA1</td>
<td>Up to 54%</td>
<td>No known risk</td>
<td>Up to 87%</td>
<td>No known risk</td>
<td>1–3%</td>
</tr>
<tr>
<td>BRCA2</td>
<td>Up to 27%</td>
<td>Unknown</td>
<td>Up to 84%</td>
<td>No known risk</td>
<td>2–7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LYNNCH SYNDROME GENES</th>
<th>EPCAM</th>
<th>MLH1</th>
<th>MSH2</th>
<th>MSH6</th>
<th>PMS2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPCAM</td>
<td>Elevated</td>
<td>12–55% (higher closer to MSH2 promoter)</td>
<td>Unknown</td>
<td>75–82%</td>
<td>Up to 4%</td>
</tr>
<tr>
<td>MLH1</td>
<td>Up to 20%</td>
<td>14–54%</td>
<td>Unknown</td>
<td>Up to 82%</td>
<td>Up to 4%</td>
</tr>
<tr>
<td>MSH2</td>
<td>Up to 24%</td>
<td>20–30%, Up to 34%</td>
<td>Unknown</td>
<td>Up to 82%</td>
<td>Up to 4%</td>
</tr>
<tr>
<td>MSH6</td>
<td>Elevated; 6–8%</td>
<td>Up to 71%</td>
<td>Unknown</td>
<td>Men: up to 44%; Women: up to 20%</td>
<td>Up to 4%</td>
</tr>
<tr>
<td>PMS2</td>
<td>Elevated</td>
<td>Up to 15%</td>
<td>Unknown</td>
<td>Up to 20%</td>
<td>Elevated</td>
</tr>
</tbody>
</table>

WHO SHOULD CONSIDER GENETIC TESTING?

Genetic testing may be appropriate if you have:
- ovarian, fallopian tube, or primary peritoneal cancer at any age
- uterine cancer, particularly if early-onset (before 50 years of age)
- breast cancer, particularly if early-onset (before 50 years of age)
- colorectal cancer, if early onset (before 50 years of age)
- multiple primary cancers such as uterine and colon
- a close blood relative who meets the above criteria
- three blood relatives with cancer (particularly ovarian, uterine, breast, colon, gastric, pancreatic, and/or prostate cancer)

NOTES:

Learn more at www.invitae.com/patients.

WHAT ARE THE BENEFITS OF TESTING?

Knowing if you have an inherited risk for cancer can be a useful tool to guide prevention and risk-reduction. 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 its earliest, most treatable stage.

In addition, genetic testing produces information that may help you and your healthcare provider:
- provide an explanation for your personal or family history of cancer
- evaluate your risk of developing future cancers
- make informed medical decisions, including treatment for an already-diagnosed cancer and/or surveillance and preventive options to help detect or prevent future cancers
- qualify you for participation in clinical trials or research studies
- identify other at-risk relatives for whom genetic testing is recommended

WHAT CAN MY FAMILY DO WITH THIS INFORMATION?

Identifying at-risk family members is one of the most important benefits of genetic testing. Screening family members for known familial genetic variants gives those who test positive the opportunity to make informed decisions on prevention strategies. For those who test negative, the results can bring peace of mind. Invitae offers a Family Variant Testing program; please inquire with your doctor.

For more information on the benefits of genetic testing, please visit www.invitae.com/patients.

1. PMID: 7907678
2. PMID: 9497246
3. PMID: 12237281
4. PMID: 12677558
5. PMID: 15236168
6. PMID: 18398828
7. PMID: 18602922
8. PMID: 19177550
9. PMID: 19861671
10. PMID: 20028995
11. PMID: 20850175
12. PMID: 21145788
13. PMID: 214455788
14. PMID: 21642682
15. PMID: 23822522
16. PMID: 22187330
17. PMID: 22492448
18. PMID: 23099806
19. PMID: 23255516
20. PMID: 23255516
21. PMID: 23562522
22. PMID: 24292448
23. PMID: 25856668
24. PMID: 26101330