patient guide

OncoSeek® 安高生命醫學

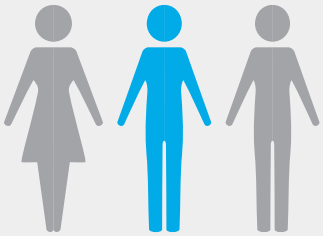
CancerNext-*Expanded*

genetic testing for hereditary cancer

Because knowing your risk can mean early detection and prevention

Ambry Genetics®
A Konica Minolta Company

Know the Basics

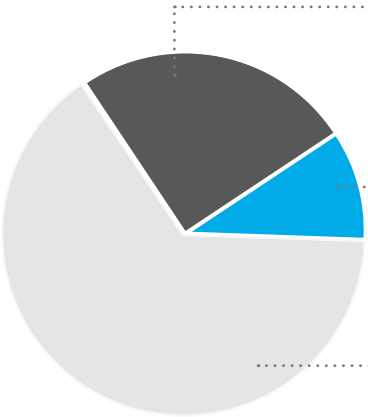


Cancer occurs in about

1 in 3 adults

in their lifetime

types of cancer



familial cancer

A clustering of cancer in a family that may be due to genes and/or other shared factors, such as environment and lifestyle

hereditary cancer

A clustering of cancer in a family due to inherited gene changes (mutations), which can be passed from parent to child

sporadic cancer

Happens by chance in one or two related family members, typically at older ages

The average age of
cancer diagnosis
in the general population is

66
YEARS OLD

Genetic testing
can help you better understand your risks for cancer

about hereditary cancer

Many people have a family history of cancer, but only **5-10% of most cancer is hereditary.**

People who have these gene mutations **are born with them** – they do not develop over time.

Learning if you have an **inherited mutation** can help you know more about your cancer risks.

People with a higher chance of developing cancer may need screening, like mammograms or colonoscopies, that start at **younger ages, and occur more often.**

Should You Have Genetic Testing?

if you answer "yes" to any of the questions below,

hereditary cancer genetic testing may be something for you and/or your family members to consider.

1. Have you/your family members* been diagnosed with cancer at a young age (≤50 years old)?

2. Have you/your family members* been diagnosed with more than one cancer?

3. Have you/your family members* been diagnosed with cancers/tumors that you have been told are usually rare, such as paraganglioma, pheochromocytoma, or medullary thyroid cancer?

4. Have multiple people on the same side of your family had cancer?

5. Have any of your family members* been found to have a cancer gene mutation?

Your healthcare provider may identify other reasons why you could consider genetic testing.

**"Family members" refers to blood relatives, such as brothers/sisters/parents/grandparents/aunts/uncles/cousins*

Genes and Associated Cancers

CancerNext-*Expanded* includes 67 genes that are linked to an increased lifetime risk for one or more cancer/tumor types such as breast, ovarian, uterine, colorectal, kidney, prostate, brain, and/or other cancers/tumors. The check marks below indicate the associated cancer types for each gene.

gene(s)	breast	ovarian	colorectal	uterine	pancreatic	prostate	stomach	KIDNEY	ENDOCRINE*	brain or other nervous system	melanoma	other
AIP										✓		
ALK										✓		✓
APC			✓		✓		✓		✓	✓		✓
ATM	✓				✓	✓						
BAP1								✓			✓	✓
BARD1, MRE11A, RAD50	✓											
BLM	✓		✓									
BRCA1	✓	✓			✓	✓						
BRCA2	✓	✓			✓	✓					✓	
BRIP1	✓	✓										
BMPR1A, SMAD4			✓				✓					
CDH1	✓						✓					
CDK4											✓	
CDKN1B									✓	✓		✓
CDKN2A					✓					✓	✓	

** Endocrine indicates at least one of the following: paraganglioma, pheochromocytoma, thyroid cancer, carcinoid tumors, pancreatic neuroendocrine tumors, and/or adrenal tumors*

gene(s)	breast	ovarian	colorectal	uterine	pancreatic	prostate	stomach	KIDNEY	ENDOCRINE*	brain or other nervous system	melanoma	other
CHEK2	✓		✓			✓						✓
DICER1		✓								✓		✓
FANCC	✓											
FH								✓	✓			✓
FLCN								✓				
GALNT12			✓									
GREM1			✓									
HOXB13						✓						
MAX									✓			
MEN1									✓	✓		✓
MET								✓				
MITF								✓			✓	
MLH1, MSH2, MSH6, PMS2, EPCAM		✓	✓	✓	✓	✓	✓	✓		✓		✓
MUTYH	✓		✓									
NBN	✓					✓				✓		✓
NF1	✓								✓	✓		✓
NF2									✓	✓		✓
PALB2	✓	✓			✓	✓						
PHOX2B										✓		✓
POLD1, POLE			✓									

** Endocrine indicates at least one of the following: paraganglioma, pheochromocytoma, thyroid cancer, carcinoid tumors, pancreatic neuroendocrine tumors, and/or adrenal tumors*

gene(s)	breast	ovarian	colorectal	uterine	pancreatic	prostate	stomach	KIDNEY	ENDOCRINE*	brain or other nervous system	melanoma	other
POT1										✓		
PRKAR1A									✓	✓		✓
PTCH1										✓		✓
PTEN	✓		✓	✓				✓	✓	✓	✓	✓
RAD51C	✓	✓										
RAD51D	✓	✓				✓						
RB1											✓	✓
RET									✓			
SDHA, SDHAF2, SDHB, SDHC, SDHD								✓	✓			
SMARCA4		✓								✓		✓
SMARCB1								✓		✓		✓
SMARCE1										✓		
STK11	✓	✓	✓		✓							✓
SUFU										✓		✓
TMEM127									✓			
TP53	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TSC1, TSC2								✓		✓		✓
VHL								✓	✓	✓		✓
XRCC2	✓											

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What are the Benefits of Genetic Testing?

for you:

Your healthcare provider can adjust your cancer screening plan (such as age of initial screening, type, and frequency) based on your genetic test results.

- Examples of cancer screening include mammogram, breast MRI, colonoscopy, prostate exam, dermatology exam, or other screening as appropriate

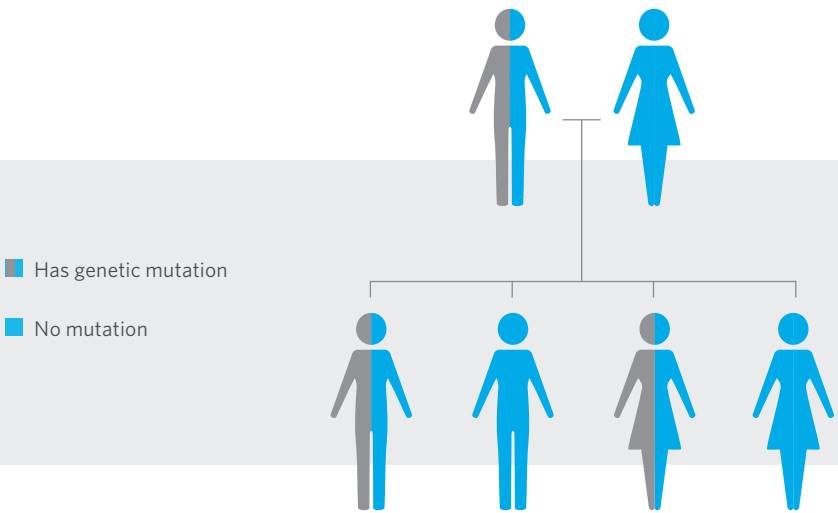
Your healthcare provider may discuss possible cancer prevention options, such as preventive surgery to reduce the risk for certain cancers.

- Examples include prophylactic mastectomy (removing one or both breasts before a cancer occurs) or prophylactic oophorectomy (removing the ovaries and Fallopian tubes before a cancer occurs)

Your doctor can discuss the possibility of other personalized treatment options based on your genetic test results.

for your family members:

If you test positive for a genetic mutation, your close family members (like your parents, brothers, sisters, children) have a 50/50 random chance of also having the same mutation.



- Men and women have the same chance to inherit a mutation, but their chance to develop cancer may be different.
- Typically genetic testing is recommended for adults, but it is important to discuss genetic testing for children under age 18 with your healthcare provider to determine if it may be helpful.

Possible Genetic Test Results

+ positive

A mutation was found in at least one of the genes tested

There are increased risks for cancer and may be management recommendations specific to the gene that has a mutation

Genetic testing for certain family members may be recommended

- negative

No genetic changes were found in any of the genes tested

Cancer risk(s) and management recommendations are based on personal and family history

Talk to your healthcare provider to find out if genetic testing should be considered for your family members

? variant of unknown significance (vus)

At least one genetic change was found, but it is unclear if this change causes an increased risk for cancer or not

Cancer risk(s) and management recommendations are based on personal and family history

Talk to your healthcare provider to find out if genetic testing should be considered for your family members

It is possible to have a combination of positive and VUS results, since multiple genes are tested.

Resources For You

Ambry's Patient Education Website

ambrygen.com/patient

American Cancer Society

cancer.org

American Society of Clinical Oncology

cancer.net

CancerCare

cancercare.org

Genetic Information Nondiscrimination Act

ginahelp.org

National Cancer Institute

cancer.gov

find a genetic counselor

National Society of Genetic Counselors

nsgc.org

Canadian Association of Genetic Counsellors

cagc-accg.ca

Frequently Asked Questions

1 how is genetic testing performed and how long does it take?

Genetic testing is done using a blood or saliva sample, which is collected using a special kit that is shipped overnight to Ambry (all coordinated by your healthcare provider). Testing looks for mutations that cause an increased risk for cancer. It takes less than three weeks for the testing to be completed and results are sent to your healthcare provider.

2 what will happen when my results are ready?

Your healthcare provider will receive your results; they will not be sent directly to you. Every healthcare provider may have a different method and time frame to contact you to discuss your results, so it is important to discuss this process with them. Based on your test results, your healthcare provider will discuss any next steps.

3 will my genetic test results affect my insurance coverage?

In the U.S., the Genetic Information Nondiscrimination Act (2008) prohibits discrimination by health insurance companies and employers, based on genetic information. Depending on where you live in the world, you may have different (or fewer) laws in this area. Visit ginahelp.org to learn more.

4 should i tell my family members about my genetic test results?

It is important to share your results with your family members as they may provide additional information about their cancer risks and management options. Your healthcare provider may be able to guide you on finding the best way to inform family members.

5 will genetic testing be covered by my insurance?

Many insurance plans cover genetic testing and Ambry is contracted with the majority of U.S. health plans. Your out-of-pocket cost may vary based on your individual plan; therefore, we offer personalized verification of insurance coverage and financial options for your genetic testing. A team of dedicated specialists is available to help you get access to the genetic testing you need and answer any questions you have about our payment options. Call or email our Billing department at +1.949.900.5795 or billing@ambrygen.com with any questions.

6 what is an explanation of benefits (eob)?

Your insurance company sends you an EOB to explain any services paid on your behalf. You can contact us directly to speak with a Billing specialist with any questions or concerns about your EOB. Some genetic tests take weeks to process in order to receive the best results.
In addition, insurance companies can take several weeks or even a couple of months to process claims.

still have questions?

Talk to your doctor or visit our website: ambrygen.com

Notes

Notes

OncoSeek®
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Finding Answers.

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