

Hereditary Melanoma

Genetic testing with the Melanoma Panel may be appropriate if your personal and/or family history is suggestive of a hereditary predisposition to melanoma. **This includes:**

- Personal history of melanoma (especially multiple melanomas) and/or a personal or family history of related cancers (such as melanoma, pancreatic cancer, mesothelioma, or renal cancer)
- Multiple relatives diagnosed with the same or related cancers (including melanoma, pancreatic cancer, mesothelioma, or renal cancer) on the same side of the family and spanning multiple generations

Your healthcare provider will determine if genetic testing is medically necessary for you.

Genes Included on the Melanoma Panel are Listed in the Table Below

High-Risk Genes Well-studied • Greater than 4-fold risk of developing one or more cancers • Can cause a moderate risk for other cancers • National or expert opinion guidelines for screening and prevention are established

Newer Genes Not as well-studied • Precise lifetime risks and tumor spectrum not yet determined • Guidelines for screening and prevention are limited or not available

Lifetime Cancer and/or Tumor Risks

	Gene	Lifetime Cancer and/or Tumor Risks*
High-Risk Genes	<i>BRCA2</i>	Female breast (33-84%), Prostate (up to 34%), Ovarian (11-27%), Pancreatic (up to 7%), Male breast (up to 7%), Melanoma, Fallopian tube, Primary peritoneal, Endometrial-serous
	<i>CDKN2A</i>	Melanoma (28-67%), Pancreatic (17%), Brain-astrocytoma
	<i>PTEN</i>	Female breast (25-85%), Thyroid (3-38%), Endometrial (5-28%), Colorectal, Renal, Melanoma, Gastrointestinal polyps, Lhermitte-Duclos disease
	<i>RB1</i>	Retinoblastoma (greater than 90%), Brain-pineoblastoma (5-10%), Soft tissue sarcoma-leiomyosarcoma and rhabdomyosarcoma, Osteosarcoma, Melanoma, Retinoma, Bladder cancer, Lung cancer
	<i>TP53</i>	Female breast (85%), Soft tissue sarcoma, Osteosarcoma, Brain, Hematologic malignancies-Acute leukemias among others, Adrenocortical carcinoma, among others. Overall risk for cancer: up to 95% in females, 88% in males
Newer Genes	<i>BAP1</i>	Renal, Melanoma-cutaneous and uveal, Mesothelioma, Basal cell carcinoma
	<i>CDK4</i>	Melanoma
	<i>MITF</i>	Renal, Melanoma
	<i>POT1</i>	Melanoma, Brain-glioma

*Most commonly associated cancers/tumors listed; lifetime risks provided when available. Risks relate to carriers of a single pathogenic variant.

Possible Outcomes of Genetic Testing



Positive

- Pathogenic or likely pathogenic variant identified
- Medical management recommendations may be available
- Family member testing may be recommended



Negative

- No significant genetic changes identified
- Medical management based on personal and/or family history



Variant of Uncertain Significance (VUS)

- A genetic change identified, but its association with disease is unclear
- Medical management based on personal and/or family history

Medical Management Based on Genetic Test Results

Clinical guidelines may be available which provide options and recommendations for patients who have a **positive** (pathogenic or likely pathogenic variant) test result indicating an increased risk for cancer and/or tumors. Guidelines and recommendations for early detection and/or risk reduction are specific to the gene in which the pathogenic variant was found.

Recommendations May Include:

- Clinical exams, such as skin or eye exams
- Imaging exams, such as a MRI, CT and/or ultrasound
- Lifestyle changes, such as sun protection strategies

In some cases, guidelines for screening and prevention are limited or not available for a positive result. Once your test results are available, a discussion with your healthcare provider is recommended to determine the most appropriate medical management options for you and your family.

Resources

General

American Cancer Society
www.cancer.org

GeneDx
www.genedx.com/oncology

National Cancer Institute
www.cancer.gov

Skin Cancer

American Academy of Dermatology
www.aad.org

Skin Cancer Foundation
www.skincancer.org

Find a Genetic Counselor

Canadian Association of Genetic Counsellors
www.cagc-accg.ca

National Society of Genetic Counselors
www.nsgc.org