Mass General Brigham
Mass General Cancer Center

Pancreatic cancer gene panel: what you need to know

Are most cases of pancreatic cancer hereditary?

No, less than 10% (<10 out of 100) of pancreatic cancer cases are thought to be partly due to an inherited risk. Some genes are known to increase the risk for pancreatic cancer. Some of these genes are linked to well-known hereditary cancer syndromes that increase the risk for other cancers as well.

What genes are linked to hereditary pancreatic cancer?

Cancer genetics is an active area of research. Below is a list of genes that are currently known to be linked to hereditary pancreatic cancer. Ask your genetic counselor for a list of the specific genes included in your testing.

Gene(s)	Cancer(s)	Syndrome Name	Estimated Lifetime Risk of Pancreatic Cancer
ATM	Breast, pancreas		~5-10%
BRCA1* and *BRCA2	Breast, ovary, prostate, pancreas	Hereditary breast and ovarian cancer	Up to 5-10%
CDKN2A	Melanoma, pancreas	Familial atypical multiple mole melanoma	>15%
MLH1, MSH2, MSH6, PMS2* and *EPCAM	Colorectal, endometrial, ovarian, stomach, pancreas	Lynch syndrome, or Hereditary non-polyposis colorectal cancer	Up to 5-10% (excluding PMS2)
PALB2	Breast, pancreas		2-5%
STK11	Small bowel, breast, gastric, ovary, pancreas	Peutz-Jeghers syndrome	>15%
TP53	Breast, bone, brain, adrenal cortical, lung, colon and others	Li-Fraumeni syndrome	5-10%

The risk of pancreatic cancer in the general population is about 1.6%.

What does it mean to have a pathogenic variant in one of the genes listed above?

Your doctors may recommend a specialized medical plan to manage the increased cancer risks. There is a 50% chance that a person with a pathogenic variant, also known as a mutation, will pass it on to each of their children. In most cases, siblings also have a 50% chance to have the pathogenic variant. Other family members may also be at risk to have the pathogenic variant.

What should I consider before choosing to have genetic testing for pancreatic cancer risk?

- A genetic test may not include all the genes linked to an increased risk of pancreatic cancer.
- Your test may identify variants of uncertain significance (VUS). VUS are genetic changes which may or may not cause an increased risk for cancer. Most VUS turn out not to increase cancer risk.
- The test may reveal a pathogenic variant in a gene with features that do not match with your family history.
- The clinical use and understanding of some of these genes is limited.

What is Familial Pancreatic Cancer (FPC)?

When a family has 2 or more members with pancreatic cancer but no identifiable pathogenic variants in the genes listed above, the family may have FPC.

Number of Relatives with Pancreatic Cancer	Estimated Lifetime Risk of Pancreatic Cancer
None	1-2% (general population risk)
1 or 2 first degree relatives (sibling, parent, child)	4-7%
3 or more first degree relatives	17-32%

Adapted from Syngal et al. (2015)