ALBERTA PRECISION LABORATORIES
Leaders in Laboratory Medicine

Pancreatic Cancer Panel: Information for Ordering Providers

Canadians have a 1 in 68 (1.5%) lifetime risk of pancreatic cancer[1]. Most cases of pancreatic cancer are sporadic; however, up to 10% of pancreatic cancers are thought to be due to a hereditary predisposition[2].

Familial pancreatic cancer is diagnosed in families with:

- 2 or more individuals with pancreatic adenocarcinoma where one is a first degree relative of the other OR
- 3 or more cases of pancreatic adenocarcinoma

Indications for Testing

Patients with a personal and/or family history suggestive of a predisposition to pancreatic adenocarcinoma are eligible for testing. Testing may also be considered for patients diagnosed at a very young age or with an unusual presentation. This panel is not indicated for patients with pancreatic neuroendocrine tumors.

Ordering privileges

Please refer to the APL Test Directory (http://ahsweb.ca/lab/apl-td-lab-test-directory) for specific ordering restrictions for each panel.

Pancreatic Cancer NGS panel:

Gene(s)	Associated cancers and/or clinical features[3]	Associated Hereditary Syndrome[3]
APC	Colonic polyps, colon cancer, hepatoblastoma	*APC*- associated polyposis conditions
ATM	Breast, ovarian, pancreatic cancer	Biallelic variants associated with Ataxia Telangiectasia
BRCA1 *BRCA2*	Breast cancer (> 60% lifetime risk in females), ovarian cancer, pancreatic cancer, prostate cancer, melanoma	*BRCA1* and *BRCA2* associated hereditary breast and ovarian cancer
CDK4	Melanoma and pancreatic cancer	N/A
CDKN2A	Melanoma and pancreatic cancer	Familial atypical multiple mole melanoma (FAMM) syndrome
EPCAM *MLH1* *MSH2* *MSH6* *PMS2*	Colorectal cancer (up to 82% lifetime risk), uterine cancer, ovarian cancer and stomach cancer	Lynch syndrome
PALB2	Breast, ovarian and pancreatic cancer	Biallelic variants associated with Fanconi Anemia
STK11	Gastrointestinal polyposis, mucocutaneous pigmentation, increased risk of cancer (colon, stomach, pancreatic, breast, ovarian), sex cord tumours	Peutz-Jeghers syndrome
TP53	Lifetime risk of 68%-93% to develop cancer. The most common tumor types include soft tissue, osteosarcomas, breast cancer, and brain cancer	Li-Fraumeni syndrome

Associated Disorders[3]

Some of the genes on this panel are associated with other hereditary cancer predispositions or other health concerns including:

Ataxia telangiectasia is characterized by progressive cerebellar ataxia, telangiectasias, immunodeficiency and an increased risk for malignancy. It is inherited in an autosomal recessive manner and associated with pathogenic variants in *ATM*.

Fanconi anemia (FA) is characterized by variable physical anomalies including short stature and skeletal limb malformations, bone marrow failure and an increased risk for malignancy. It can be inherited in an autosomal recessive, autosomal dominant or X-linked fashion. Biallellic pathogenic variants in *BRCA2* or *PALB2* are associated with FA.

Constitutional mismatch repair deficiency syndrome is a rare autosomal recessive condition that occurs in individuals who have two pathogenic variants in one of the following genes: *EPCAM, MLH1, MSH2, MSH6 or PMS2.* Affected individuals often have onset of colon/intestinal cancer before the age of 20 years and may have a cutaneous phenotype similar to that seen in neurofibromatosis type I.

When can I expect results?

Results may take up to 4 months.

How are results reported?

Results are sent to the ordering provider and available in Netcare and Connect Care.

Contact Information

Genetic Counsellors, Genetics & Genomics
Edmonton: 780-407-1015
Calgary: 403-955-3097

Requisition forms, contact information and other resources can be found at:
http://ahsweb.ca/lab/if-lab-genetics-and-genomics

References

1. Canadian Cancer Statistics Advisory Committee in collaboration with the Canadian Cancer Society, Statistics Canada and the Public Health Agency of Canada. Canadian Cancer Statistics 2021. Toronto, ON: Canadian Cancer Society; 2021. Available at: cancer.ca/Canadian-Cancer-Statistics-2021-EN (accessed [2022 September]).
2. Ghiorzo P. Genetic predisposition to pancreatic cancer. World J Gastroenterol. 2014 Aug 21;20(31):10778-89. doi: 10.3748/wjg.v20.i31.10778. PMID: 25152581; PMCID: PMC4138458.
3. Adam MP, Mirzaa GM, Pagon RA, et al., editors. GeneReviews®. Seattle (WA): University of Washington, Seattle; 1993-2022. Available from: https://www.ncbi.nlm.nih.gov/books/NBK1116/ (accessed [2022 September])