GOPATH® LABORATORIES
Global Pathology Services

ProstateNow™
NGS-Based Panel for Hereditary Prostate Cancer

Men and Hereditary Cancer

The focus of hereditary testing often has been on women who are at risk for developing hereditary breast and ovarian cancers (HBOC). But recent findings have indicated that genetic mutations associated with BRCA and Lynch syndrome increase a man's risk for developing prostate cancer. It is now believed that approximately 5-10% of all prostate cancers are inherited.[1] BRCA2 mutations in particular have been associated with an increased risk for prostate cancer, earlier onset of the disease, a more aggressive phenotype and reduced survival times when compared with patients who do not have a genetic mutation.[2]

Why Genetic Testing?

Early Screenings: Genetic mutations increase a person's risk for developing cancer at a younger age. Knowing of a mutation may lead to earlier cancer screenings. For example, the National Comprehensive Cancer Network (NCCN) recommends that men with a BRCA2 mutation begin prostate cancer screenings at age 45.[2]

Prevention: Knowing about a mutation can influence the steps a person takes toward prevention such as having more frequent or earlier screenings, making lifestyle changes or taking medication.

Family Members: If a mutation exists, other family members can be tested and also take preventive measures if results are positive.

Treatment: Genetic mutations may influence treatment decisions. For example, data suggests men with prostate cancer who have a BRCA mutation have an increased risk of progression on local therapy and decreased overall survival, which should be taken into consideration if they are considering active surveillance.[3]

Risk Prediction: Certain mutations are associated with an increased risk for specific cancers. For example, the overall risk of prostate cancer has been reported up to 3.8-fold for men with a BRCA1 mutation and 8.6-fold for men with a BRCA2 mutation.[4]

Associated Hereditary Prostate Cancer Genes

GENE	SIGNIFICANCE
BRCA2	Up to an 8.6-fold risk for developing prostate cancer[4]
BRCA1	Up to a 3.8-fold risk for developing prostate cancer[4]
Lynch Syndrome (MLH1, MSH2, MSH6, PMS2, EPCAM)	Up to a 2- to 5.8-fold risk for developing prostate cancer[2]
ATM	Detected in approximately 1.6% of all metastatic prostate cancer patients[5]
CHEK2	Detected in approximately 1.9% of all metastatic prostate cancer patients[5]
NBN	Mutation associated with aggressive prostate cancer and poorer prognosis[6]
HOXB13	Men with this mutation have up to 60% chance of developing prostate cancer in their lifetime[8]
TP53	Increases risk for a number of cancers such as Li-Fraumeni syndrome
PALB2 & RAD51D	Recent studies indicate a link between mutations in these genes and increased risk for hereditary cancer[7]

Why ProstateNow™?

ProstateNow™ is an NGS-based, multigene panel that examines a variety of genes associated with hereditary prostate cancer. Genes included in this panel are: ATM, BRCA1, BRCA2, CHEK2, EPCAM, HOXB13, MLH1, MSH2, MSH6, NBN, PMS2, PALB2, RAD51D, TP53. We are constantly researching and adding new genes to our panels to include more cancer screenings in our GeneticsNow™ series. ProstateNow™ detects germline variants as well as duplication/deletion of most genes in the panel. It also provides highly accurate results with a quick 10-14 day turnaround.

When Should Your Patient Consider Having Genetic Testing?

Before having genetic testing, your patient will need to meet with a genetic counselor for an analysis of his personal and family health history. The NCCN has developed guidelines for prostate cancer patients, which recommends genetic testing for patients:

- Who have had prostate cancer (Gleason ≥7 or metastatic) at any age with ≥1 close blood relative with ovarian cancer at any age or breast cancer ≤50 or two relatives with breast, pancreatic, or prostate cancer (Gleason ≥7 or metastatic) at any age[4]
- Whose family has a known genetic mutation[3]
- Who have a personal and/or strong family history of BRCA- and/or Lynch syndrome-related cancers[2]
- Who have metastatic or high-/very-high-risk clinically localized prostate cancer[3]

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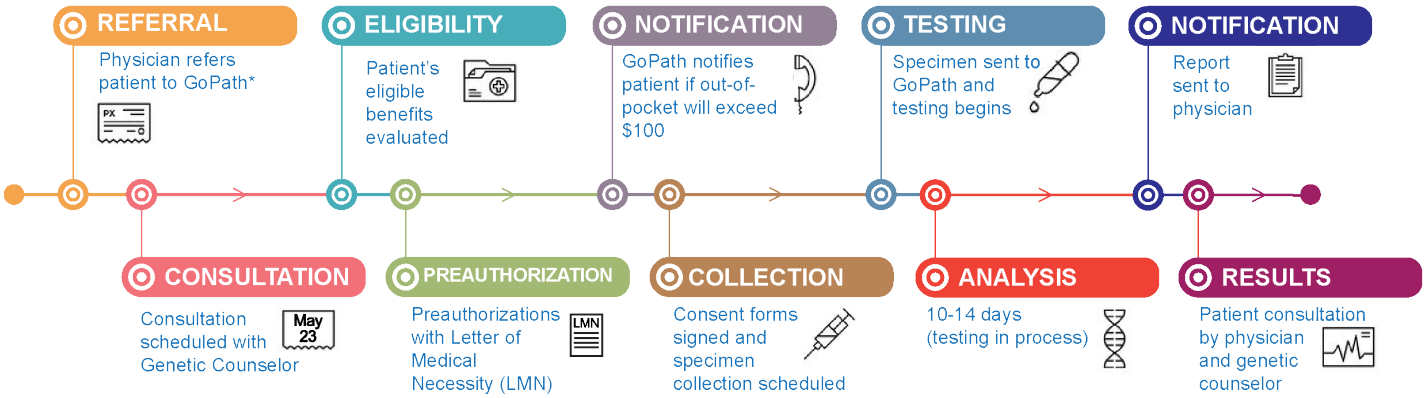
The Genetics*Now*™ Testing Process: How it Works



*Under the Additional Information section of requisition, physicians may simply write, "Genetic testing will be chosen by Genetic Counselor after consultation with patient."

Checklist for Genetic Testing:

To ensure completeness and accuracy of all paperwork involving family history, billing and the testing process, please follow this simple checklist. At GoPath Laboratories, our goal is to simplify the testing and billing process through exceptional service and helpful tools. We designed this checklist to help guide patients, providers and genetic counselors through the testing process.

- ☐ Complete family history and risk assessment with physician
- ☐ If genetic testing recommended, the physician will give a referral to the genetic counselor and submit paperwork for pre-authorization to GoPath Laboratories
- ☐ Notification of insurance coverage and any patient bill portion given
- ☐ Schedule an appointment with a genetic counselor
- ☐ Complete counseling session with genetic counselor
- ☐ Schedule a blood draw at the physician's office or designated draw site location
- ☐ ** For Medicare patients, a completed ABN must accompany the specimen sample **
- ☐ Schedule follow-up visit with physician to review results
- ☐ Coordinate family member testing, if applicable, based on physician and/or genetic counselor recommendations

For more information, visit www.GoPathGenetics.com or call 855.GOPATH9

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8. MacInnis RJ, Severi G, Baglietto L, Dowty JG, Jenkins MA, Southey MC, et al. (2013) Population-Based Estimate of Prostate Cancer Risk for Carriers of the HOXB13 Missense Mutation G84E. PLoS ONE 8(2): e54727. https://doi.org/10.1371/journal.pone.0054727