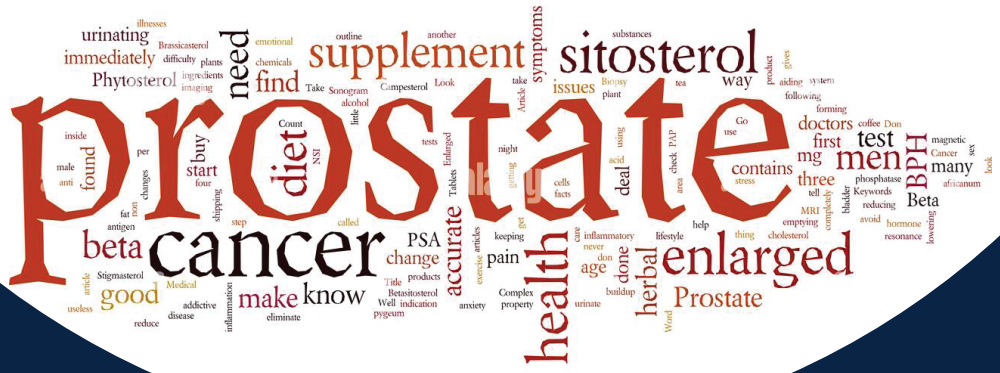
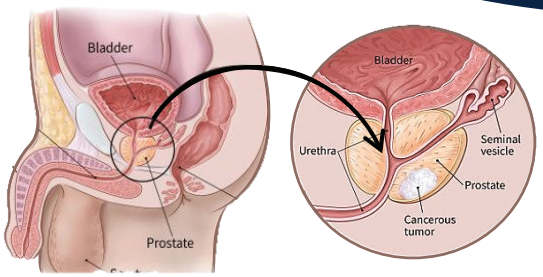


Genetic Testing in **Prostate Cancer** By **Next Generation Sequencing**

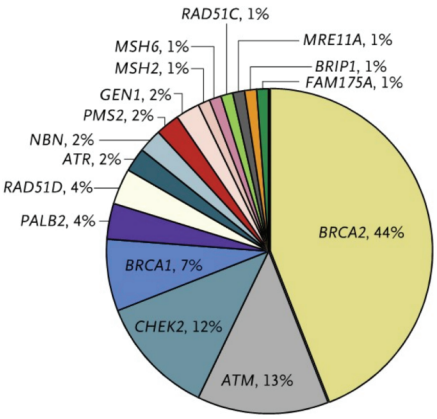


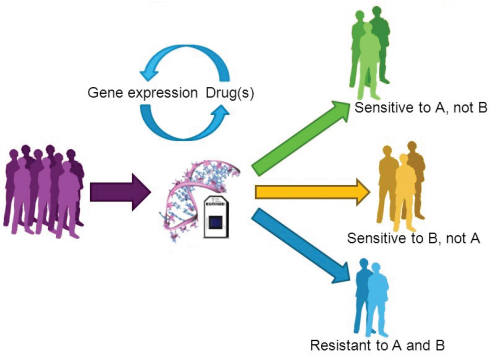
*__Prostate__ is among the top ten leading sites of cancers in India;

- New cases: 25,696
- Deaths: 17,184
- 5 years prevalence: 47,558

Why Genetic Testing?

- Identifies specific genetic changes that raise the risk of prostate cancer
- Detect the chance of onset of Prostate Cancer in people with a family history of prostate cancer
- Recommended panel for hereditary genetic mutations with increased risk of prostate cancer:
  - → BRCA1 and BRCA2
  - → CHEK2, ATM, PALB2, and RAD51D
  - → RNASEL
  - → HOXB13
  - → DNA mismatches repair genes, such as MSH2, MSH6, or MLH1





Clinical Significance

- Identifies one or more genetic mutations, suggesting an increased risk of developing prostate cancer in healthy individual from an inherited genetic mutation
- Help in diagnosis and treatment of people who already have prostate cancer
- Help in deciding targeted therapy in case of drug resistance or patients not responding to cancer treatment.

RML® MEHROTRA PATHOLOGY
Committed To Diagnostic Excellence

Registered Office: A-21A, Nirala Nagar, Lucknow-226020
Corporate Office : B-171, Nirala Nagar, Lucknow
Email : rmllabs@hotmail.com | Mob.no: 7991602001, 7991602002, 7991602003

*(Globocan, 2018)

ATM	Heterozygous pathogenic variants in ATM may be associated with an increased risk for prostate cancer, and possibly for a more aggressive form of cancer if it is developed. However, the evidence is contradictory. Additional research is needed.	PubMed: 26662178, 27989354, 27595995,1248000, 15928302, 15942625
BRCA1	Autosomal dominant pathogenic variants in the BRCA1 gene are associated with an increased risk for prostate cancer.	PubMed: 9497246, 12677558, 17416853, 20301425, 22846731
BRCA2	Autosomal dominant mutations in the BRCA2 gene are implicated in the hereditary breast and ovarian cancer syndrome (HBOC). Additionally, biallelic mutations in BRCA2 gene are associated with autosomal recessive Fanconi anemia Type D1.	PubMed: 12065746, 12677558, 9497246, 17416853, 18042939, 20301425, 22846731
CHEK2	Heterozygous pathogenic variants in CHEK2 are associated with an increased risk for prostate cancer, as well as other CHEK2-related cancers.	PubMed: 25431674, 16998506, 18172190, 21876083, 27595995, 15492928, 11719428, 20597917, 21807500, 21876083, 21956126, 23713947, 23296741, 24240112, 24599715, 24879340, 28283864
EPCAM	Heterozygous pathogenic variants in the EPCAM gene cause Hereditary Non-Polyposis Colorectal Cancer (HNPCC), also known as Lynch Syndrome, which is associated with an increased risk for prostate cancer.	PubMed: 23530095, 24434690, 24425144, 20301390, 23462293
HOXB13	Heterozygous pathogenic variants in HOXB13 are associated with an increased risk for prostate cancer.	PubMed: 22236224, 24026887, 22841674, 23457453; OMIM: 604607
MLH1	Heterozygous pathogenic variants in the MLH1 gene cause Hereditary Non-Polyposis Colorectal Cancer (HNPCC), also known as Lynch Syndrome, which is associated with an increased risk for prostate cancer.	PubMed: 23530095, 24434690, 24425144, 20301390, 23462293
MSH2	Heterozygous pathogenic variants in the MSH2 gene cause Hereditary Non-Polyposis Colorectal Cancer (HNPCC), also known as Lynch Syndrome, which is associated with an increased risk for prostate cancer.	PubMed: 23530095, 24434690, 24425144, 20301390, 23462293
MSH6	Heterozygous pathogenic variants in the MSH6 gene cause Hereditary Non-Polyposis Colorectal Cancer (HNPCC), also known as Lynch Syndrome, which is associated with an increased risk for prostate cancer.	PubMed: 23530095, 24434690, 24425144, 20301390, 23462293
NBN	Heterozygous pathogenic variants in NBN (also known as NBS1) have been associated with a number of malignancies including melanoma, non-Hodkins lymphoma, medulloblastoma, and colorectal, prostate, and breast cancers. Other studies have shown possible associations with aplastic anemia and acute lymphoblastic leukemia. Biallelic pathogenic variants in NBN have been associated with Nijmegen Breakage syndrome (NBS). Individuals with NBS generally have progressive intellectual disability, growth retardation and immunodeficiency, and are at an increased risk for a variety of cancers, including lymphoma, glioma, and medulloblastoma.	PubMed: 14973119, 15185344, 16474176, 16770759, 18079974, 19908051, 21514219,15338273,11325820, 20301355; OMIM: 609135, 251260
PMS2	Heterozygous pathogenic variants in the PMS2 gene cause Hereditary Non-Polyposis Colorectal Cancer (HNPCC), also known as Lynch Syndrome, which is associated with an increased risk for prostate cancer.	PubMed: 23530095, 24434690, 24425144, 20301390, 23462293
TP53	Heterozygous pathogenic variants in the TP53 gene are associated with Li-Fraumeni syndrome, a condition that increases risk for many types of cancer.	PubMed: 20301488, 26014290, 26142905; OMIM: 151623, 191170

Registered Office: A-21A, Nirala Nagar, Lucknow-226020
Corporate Office : B-171, Nirala Nagar, Lucknow
Email : rmllabs@hotmail.com | Mob.no: 7991602001, 7991602002, 7991602003