

## Position Statement: Genomic testing in prostate cancer



Advances in the laboratory increasingly provide clinicians with patient-specific genomic information that contributes to individualized risk-stratification, treatment planning, and assessment of hereditary cancer risk.

In prostate cancer, three different tissue-based molecular tests are available for use in risk stratification. Each is unique in the panel of genes tested, as well as the clinical endpoints for which they have been validated. There are also tests available to assess for inherited gene mutations (germline mutations) that have been shown to affect both personal and family risk of prostate and other cancers.

The NCCN Prostate Cancer Guideline version 1.2018 makes recommendations for groups of prostate cancer patients that should consider tissue-based molecular testing and/or germline testing. It states:

- Tissue-based molecular testing should be considered for low and favorable intermediate risk men with life expectancy  $\geq 10$  years.
- Germline testing should be considered in men with very-low risk, low risk, favorable and unfavorable intermediate risk prostate cancer and strong family history. Germline testing should also be considered, irrespective of family history, in men with high-risk, very-high risk, regional or metastatic disease.
  - Strong family history consists of: brother or father or multiple family members diagnosed with prostate cancer at less than 60 years of age; known germline DNA repair gene abnormalities, especially BRCA2 mutation or Lynch syndrome (germline mutations in MLH1, MSH2, MSH6, or PMS2); and/or more than one relative with breast, ovarian, or pancreatic cancer (suggests possibility of BRCA2 mutation) or colorectal, endometrial, gastric, ovarian, pancreatic, small bowel, urothelial, kidney, or bile duct cancer (suggests possibility of Lynch syndrome).

There is an urgency to incorporating newly available laboratory tools into the evaluation and management of prostate cancer to promote the accurate selection of men for active surveillance and to identify those who may be better served with multimodal treatment rather than monotherapy. Better patient selection for active surveillance will reduce the burden of over-treatment of indolent disease. Further, it is incumbent on urologists to obtain detailed family cancer histories and to consider hereditary genetic testing when family history patterns suggest risk. It is estimated that we are aware of only 15% of BRCA mutation carriers in the United States. Identifying a man with a BRCA mutation may inform 1) his risk of developing prostate cancer, 2) the clinical course of his diagnosed prostate cancer, 3) his prostate cancer's response to certain therapies, and 4) his family members' risk of developing certain cancers.

While the available prostate cancer tissue-based molecular tests have robust retrospective scientific and clinical validity, they should be incorporated with other measures of prostate cancer risk including prostate-specific antigen, Gleason grade and clinical stage.

**The AACU supports the use of tissue-based molecular testing as a component of risk stratification in prostate cancer treatment decision making. We also strongly encourage taking family cancer histories and pursuing germline testing where appropriate to provide patients and their families with clarity about their hereditary cancer risk. We also support ongoing research to further refine the prognostic power of these tests.**

*This statement has been endorsed by*

