

Prostate

Early Stage

When and what should be tested?

- Treatment eligible
- At initial diagnosis

FDA/NCCN approved

- Risk Stratification: Selected Advanced Tools for Localized Prostate Cancer
 - Decipher - 22-gene genomic classifier
 - ArteraAI Prostate – Multimodal artificial intelligence
- Inquire about known high risk germline mutations and family history. Perform somatic and/or germline testing as appropriate for clinically localized, regional prostate cancer
- Germline panel: BRCA1, BRCA2, ATM, PALB2, CHEK2, HOXB13, MLH1, MSH2, MSH6, PMS2
- Somatic Panel: BRCA1, BRCA2, ATM, PALB2, FANCA, RAD51D, CHEK2, CDK12

Emerging

Informational Considerations

Regular monitoring of PSA levels is required as standard of care. Relevant Testing Panel:

- Germline Panel: BRCA2, ATM, BRCA1, CHEK2, PALB2, GEN1, RAD51D, MLH1, MSH2, MSH6, PMS2, HOXB13
- Somatic Panel: Genes that encode proteins responsible for DNA damage repair via homologous recombination, including ATM, BRCA1/2, and CHEK2 (among others), as well as genes that encode proteins involved in mismatch repair

Prostate

Node Positive and Stage IV Newly Diagnosed and Recurrent Disease (somatic)

When and what should be tested?

- Treatment eligible
- Node positive and Stage IV
- At initial diagnosis or upon progression
- Patients with hereditary risk syndromes
- Blood sample for germline testing
- Tissue sample for somatic testing
- Consider liquid biopsy if lack of tissue

FDA/NCCN approved

- HRRm/Homologous Recombination Repair gene mutation (BRCA1, BRCA2, ATM, BARD1, BRIP1, CDK12, CHEK1, CHEK2, FANCA, FANCL, HOXB13, PALB2, RAD51B, RAD51C, RAD51D, RAD54L, ATR, MLH1, MSH2, MSH6, PMS2, MRE11A, NBN)
- MSI/dMMR
- NTRK
- TMB
- BRAF V600E
- RET gene rearrangement
- HER2
- PTEN by IHC for mCSPC

Emerging

- ZNF 750 is a novel prognostic marker in metastatic prostate cancer
- MRD

Informational Considerations

- Traditional histologic features
- AR-V7 splice variant testing for progression on prior hormonal therapy
- For regional or met disease $\geq$ N1 and Gleason score $\geq$ 7 or high risk:
 - Consider germline testing
- For treatment-naïve metastatic and Gleason score $\geq$ 7:
 - Consider somatic testing; retest after 2-3 lines of therapy
- For castrate-resistant:
 - Consider comprehensive NGS if failed early on treatment; should include TMB, MSI, NTRK, BRCA 1/2

Regular monitoring of PSA levels is required as standard of care. Relevant Testing Panel:

- Germline Panel: BRCA2, ATM, BRCA1, CHEK2, PALB2, GEN1, RAD51D, MLH1, MSH2, MSH6, PMS2, HOXB13
- Somatic Panel: Genes that encode proteins responsible for DNA damage repair via homologous recombination, including ATM, BRCA1/2, and CHEK2 (among others), as well as genes that encode proteins involved in mismatch repair

cencora

Bladder

Stage II/IIIA

When and what should be tested?

- At time of initial diagnosis
- Tissue sample preferred
- Consider liquid biopsy if there is a lack of tissue

Who should be tested?

- All treatment eligible patients
- Performance status of ECOG 0-2
- Consider germline testing and genetic counselor referral especially if younger age at presentation (< 45 years) or family history of colon/endometrial cancer

FDA/NCCN Approved

- n/a

Emerging

- NGS for patients with early bladder cancer for possible active surveillance based on RETAIN BLADDER TRIAL. Stage II-IIIa
- Ct DNA during and after neoadjuvant chemotherapy.
- MRD

Informational considerations

- ERCC-1 expression (cisplatin sensitivity)
- ERCC2 (cisplatin sensitivity)

Bladder

Stage IIIB/IV

When and what should be tested?

- At time of initial diagnosis
- Tissue sample preferred
- Consider liquid biopsy if there is a lack of tissue

Who should be tested?

- Treatment eligible
- Performance status of ECOG 0-2
- Consider germline multigene panel testing and genetic counselor referral especially if younger age at presentation (< 45 years) or family history of colon/endometrial cancer

FDA/NCCN Approved

- Consider comprehensive NGS panel if insurance allows (including NTRK*)
- MSI/dMMR
- PD-L1
- TMB
- FGFR 3
- NTRK
- PIK3CA
- ERBB2/HER2
- CDKN2A

Based on tumor-agnostic approval

- RET gene rearrangement
- BRAF V 600 E
- HER2

Emerging

- NECTIN4 expression

Informational considerations

- ERCC-1 expression (cisplatin sensitivity)
- ERCC2 (cisplatin sensitivity)