**Supplementary Materials**

**Table S1:** Current commercialized tissue-based genomic tests. Modified from Sotomayor et al. [20].

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Test | **Company** | **Biomarkers** | **Substrate** | **Clinical Endpoints** | **Target patient** | **Technique** | **Price USD** | **Certification** |
| **Decipher** | GenomDX (Vancouver, BC Canada) | 22 coding and noncoding RNAs (*LASP1*, *IQGAP3*, *NFIB*, *S1PR4*, *THBS2*, *ANO7*, *PCDH7*, *MYBPC1*, *EPPK1*, *TSBP*, *PBX1*, *NUSAP1*, *ZWILCH*, *UBE2C*, *CAMK2N1*, *RABGAP1*, *PCAT-32*, *GLYATL1P4/* *PCAT-80*, and *TNFRSF19* | FFPE tissue from prostate tumor biopsies  | Scores from 0 to 1, classifies patients as high risk 0.61 to 1.0 (1 in 5 risk of metastasis), average risk 0.46 to 0.6, or low risk 0 to 0.45 (1 in 42 risk of metastasis | Patients with localized disease on biopsy | RNA Microarray | $4,250 - $5,150. | CLIA-certified. Testis not approved by the FDA. NCCN guidelines state that the test can be considered to be used in patients with localized tumors, but studies to compare effectiveness are necessary to prove clinical utility and improve risk stratification. The test is not cited by the EAU guidelines. Limited Medicare coverage. Available 2015 in USA |
| **Prolaris** | Myriad Genetics, Salt Lake City, UT, USA | *31* cell cycle progression (CCP) genes*: CDKN3, RRM2, RAD54L, RAD51, CDC20, CDC2, BUB1B, PLK1, TOP2A, PTTG1, FOXM1, KIF11, KIAA0101, NUSAP1, CENPF, ASPM, DLGAP5, BIRC5, KIF20A, TK1, PBK, ASF1B, C18orf24, CDCA3, MCM10, PRC1, DTL, CEP55, CENPM, CDCA8, and ORC6L.* | 1) prostate biopsy or a 2) radical prostatectomy specimen | from 0 to 10, with each 1unit increase reflecting a doubling of risk of disease progression | Patients in Active Surveillance | mRNA expression level | $3,400-$3,900 | Prolaris is validated by the FDA for use in men with NCCN with low risk prostate cancer and for post-prostatectomy patients who are at high risk for prostate cancer recurrence. It has also been incorporated as an option in the NCCN and European Association of Urology guidelines for prostate cancer. Available 2012 in US |
| **Oncotype Dx** | Genomic Health, Redwood City, CA, USA | Use 5 reference genes (*ARF, ATP5E, CLTC, GPS1, PGK1*) and 12 genes representing 4 biologic pathways with known roles in PCa tumorigenesis: theandrogen pathway (*AZGP1, KLK2, SRD5A2,* and *FAM13C*), celular organization (*FLNC, GSN, TPM2,* and *GSTM2*), stromal response (*BGN,**COL1A1,* and *SFRP4*) and proliferation (*TPX2*). | paraffin-embedded prostate needle biopsy tissue | score from0 to 100, where a value 0 is lowest risk and 100 is highest risk | Patients in Active Surveillance | real-time RT-PCR | $4,180-$5,141 | CLIA-certified. $4180. Covered by Medicare . For other carriers, assistance is available from the manufacturer. Available 2013 in US |

**Table S2:** Summary of different Urologic and Oncology Societies for the use of TBGB for prediction of metastatic disease.

|  |  |  |
| --- | --- | --- |
| **Society** | **Year of last version publication** | **Recommendation** |
| **Oncotype Dx** | **Prolaris** | **Decipher** |
|  **American Urology Association + American Society for Radiation Oncology (AUA/ ASTRO)** | 2022 Localized PC, 2021 amended in 2023 Advanced PC | Not routinely | Not routinely | Not routinely |
| **National Comprehensive Cancer Network (NCCN)** | 2023 | To initial risk stratification in low and favorable intermediate risk. | To initial risk stratification in low, intermediate and high risk. | To initial risk stratification in low, intermediate and high risk.To inform adjuvant treatment post RP |
| **European Guidelines (EAU-EANM-ESTRO-ESUR-SIOG)**  | 2023 | Not routinely | Not routinely | Describe studies about post- RP utility but no recommendation. |
| **American Society of Clinical Oncology (ASCO)**  | 2018 Localized PC, 2020 Molecular biomarkers in localized PC, 2023 Non.castrated advanced, recurrent and mPC | No mention | No mention | Not routinely |