



## XXVIII Workshop Urologia Oncológica

• EPIC SANA Marquês Hotel  
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# Precision Medicine

## BRCA mutations how and whom to test

Dr Pedro Oliveira, Christie Hospital, Manchester, U.K.



ORIGINAL ARTICLE

# Abiraterone and Olaparib for Metastatic Castration-Resistant Prostate Cancer

Noel W. Clarke, M.B.B.S., Ch.M., F.R.C.S.,<sup>1</sup> Andrew J. Armstrong, Sc.M., M.D.,<sup>2</sup> Antoine Thiery-Vuillemin, M.D., Ph.D.,<sup>3</sup> Mototsugu Oya, M.D.,<sup>4</sup> Neal Shore, M.D.,<sup>5</sup> Eugenia Loreda, M.D.,<sup>6</sup> Giuseppe Procopio, M.D.,<sup>7</sup> Juliana de Menezes, M.D.,<sup>8</sup> Gustavo Giroto, M.D.,<sup>9</sup> Cagatay Arslan, M.D.,<sup>10</sup> Niven Mehra, M.D., Ph.D.,<sup>11</sup> Francis Parnis, F.R.A.C.P.,<sup>12</sup> Emma Brown, M.D.,<sup>13</sup> Friederike Schlürmann, M.D.,<sup>14</sup> Jae Y. Joung, M.D., Ph.D.,<sup>15</sup> Mikio Sugimoto, M.D., Ph.D.,<sup>16</sup> Juan A. Virizuela, M.D., Ph.D.,<sup>17</sup> Urban Emmenegger, M.D.,<sup>18</sup> Jiri Navratil, M.D.,<sup>19</sup> Gary L. Buchsacher, Jr., M.D., Ph.D.,<sup>20</sup> Christian Poehlein, M.D.,<sup>21</sup> Elizabeth A. Harrington, Ph.D.,<sup>22</sup> Chintu Desai, Ph.D.,<sup>23</sup> Jinyu Kang, M.D.,<sup>24</sup> Fred Saad, M.D., F.R.C.S.,<sup>25</sup> for the PROpel Investigators\*



**Issues ...**

- ID/Testing**
- Approval**
- Money**



# Somatic and/or Genomic


GENOME





Original Article

# Germline and Somatic DNA Repair Gene Alterations in Prostate Cancer

Marc A. Dall'Era, MD <sup>1,2</sup>; John D. McPherson, PhD<sup>2</sup>; Allen C. Gao, MD, PhD<sup>1,2</sup>; Ralph W. DeVere White, MD<sup>1,2</sup>; Jeffrey P. Gregg, MD<sup>2,3</sup>; and Primo N. Lara, Jr, MD<sup>1,2</sup>

**BACKGROUND:** Emerging evidence has suggested that DNA repair gene alterations may be important in prostate cancer pathogenesis. In the current study, the authors sought to characterize alterations in DNA repair pathway genes in both primary and metastatic prostate tumors with attention to tissue distribution as well as specific genomic alterations. **METHODS:** The authors studied the distribution and type of alterations in 24 genes that are considered important for DNA repair in 944 prostate cancers harvested from localized and metastatic tumors. Tumor DNA underwent hybrid capture for all coding exons of 287 or 395 cancer-related genes plus select introns from 19 or 31 genes frequently rearranged in cancer. Captured libraries were sequenced to a median exon coverage depth of >x500. Specific genomic alterations were characterized and the frequencies of mutations by tissue site (prostate vs metastases) were compared using logistic regression. **RESULTS:** A total of 152 patients from the cohort of 944 men (16%) harbored a germline or somatic mutation in  $\geq 1$  DNA repair genes. The most frequently mutated genes were *BRCA2* (11.4%) and *ATM* (5.8%), followed by *MSH6* (2.5%) and *MSH2* (2.1%). Mutations were identified in approximately 20.1% of primary prostate tumors compared with 18.8% of bone metastases. When stratified by tissue site, the highest rates of DNA repair mutations were found in solid organ metastases, including brain and visceral metastases, compared with prostate. **CONCLUSIONS:** DNA repair gene mutations are more common in metastatic than localized prostate tumors. Visceral and other solid organ metastases appear enriched for these mutations compared with localized tumors or bone and lymph node metastases. **Cancer 2020;0:1-6.** © 2020 American Cancer Society.

**KEYWORDS:** *BRCA2*, DNA repair, genomics, poly(adenosine diphosphate ribose) polymerase (PARP) inhibitor, prostate cancer.



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# National genomic test directory

## Document



### National genomic test directory for cancer

Microsoft Excel 491 KB

## Summary

The National genomic test directory for cancer specifies the genomic tests commissioned by the NHS in England for cancer, the technology by which they are available, and the patients who will be eligible to access to a test.

Version 5. Updated 31 October 2022.



Prostate Cancer	M218.1	Multi-target NGS panel - small variant (BRCA1, BRCA2, ATM, CDK12)	BRCA1, BRCA2, ATM, CDK12
	M218.2	Multi-target NGS panel - structural variant (TMPRSS2-ERG, NTRK1, NTRK2, NTRK3)	TMPRSS2-ERG, NTRK1, NTRK2, NTRK3
	M218.3	TMPRSS2-ERG FISH	TMPRSS2-ERG

Small variant detection	Panel	NB BRCA1/2 for any prostate cancer, ATM / CDK12 for metastatic castrate resistant prostate cancer
Structural variant detection	Panel	Only required if there is a doubt over the aetiology of a tumour on the basis of morphology and prostate carcinoma is in the differential
Structural variant detection	FISH	Only required if there is a doubt over the aetiology of a tumour on the basis of morphology and prostate carcinoma is in the differential



# Who can have olaparib?



Olaparib is currently only an option for some men diagnosed with [advanced prostate cancer](#) in **Scotland**.

If you live in **England, Wales** or **Northern Ireland**, olaparib will not be an option for you as it's currently being reviewed by the [National Institute for Health and Care Excellence \(NICE\)](#). Olaparib may be available as part of a clinical trial. Your doctor will talk to you about the treatment options available to you.





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# Thanks