SureSeq myPanel

A Sysmex Group Company

NGS Custom Prostate Cancer panel

Features

Hybridisation-based enrichment delivering unparalleled coverage uniformity

- Detect low frequency prostate cancer variants consistently with confidence

Panel content designed with experts and from current literature to target all relevant regions

- Get the most comprehensive insight into disease-driving mutations

Complimentary Interpret NGS data analysis software

- Easy-to-use analysis solution for accurate detection of all variants

SureSeq
myPanel

NGS Custom Prostate Cancer panel

Introduction

Prostate cancer is now the second leading cause of cancer in men, with recent genome-wide studies helping to clarify the genetic basis of this common but complex disease[1]. Many of these studies have reinforced the importance of homologous end repair genes including: *ATM*, *BRCA1*, *BRCA2* and *PALB2*, in the mechanism of prostate cancer development. Mutations in these genes result in cells having to repair lesions through other non-conservative mutagenic mechanisms.

Choose your ideal prostate cancer NGS panel from our range of fully optimised NGS panel content. Simply mix and match the genes or individual exons you require and get the most out of your sequencing runs. Use in conjunction with the SureSeq™ FFPE DNA Repair Mix* for improved NGS library yields, %OTR (on target rate) and mean target coverage from challenging FFPE derived samples.

Superior Coverage Uniformity

A number of genetic factors have been found that increase prostate cancer risk, including heritable mutations in the genes *BRCA1* and *BRCA2*. *BRCA1* is a key player in cellular control systems, having been linked to DNA damage response and repair, transcriptional regulation and chromatin modelling[2], while *BRCA2* function is linked to DNA recombination and repair processes, being of particular importance in the regulation of *RAD51* activity. Figure 1 illustrates the superior uniformity of coverage of key exons of *BRCA1* and *BRCA2* from an FFPE sample.

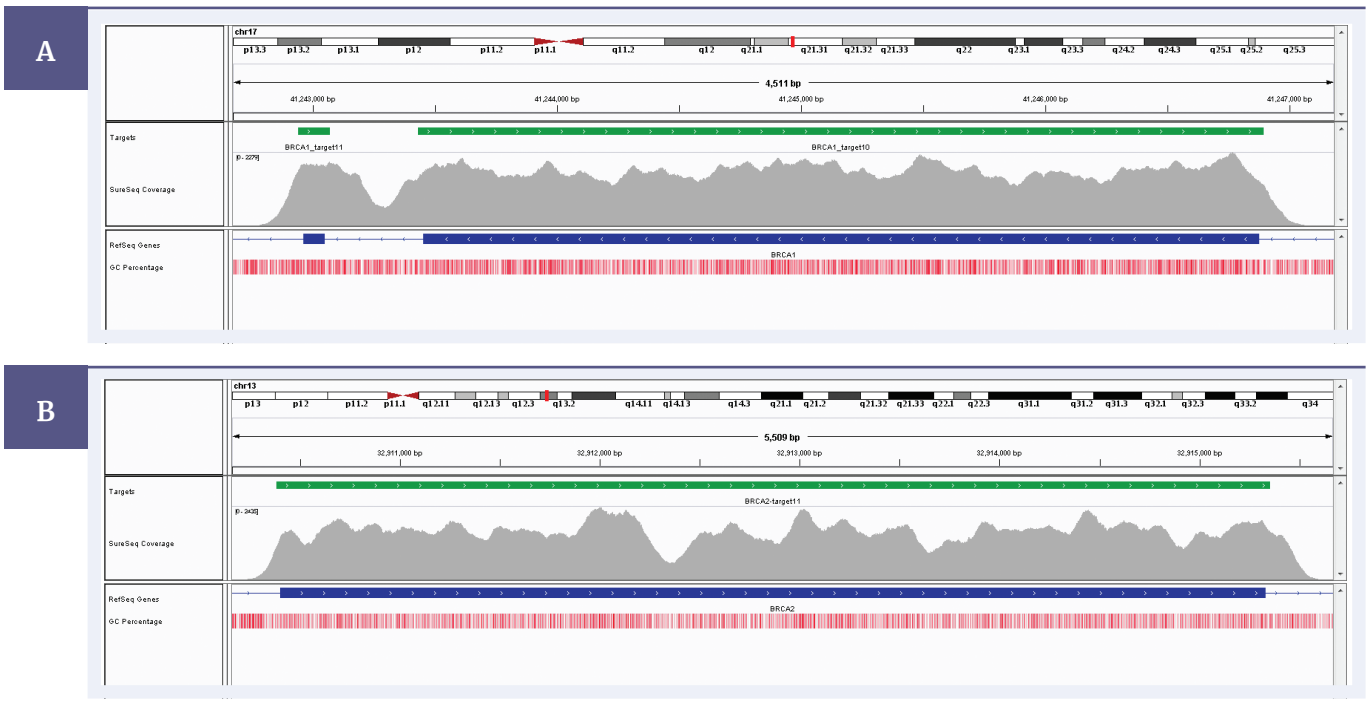

Figure 1: A *BRCA1* exon 9 and 10 coverage, B *BRCA2* exon 11 coverage. Depth of coverage per base (grey). Targeted region (green). Gene coding region as defined by RefSeq (blue). GC percentage (red).

PALB2 is a *BRCA2* binding protein and the *BRCA2-PALB2* interaction is essential for *BRCA2*-mediated DNA repair. Recently it has been shown that correct *PALB2* function is necessary for the homologous recombination repair via interaction with *BRCA1*, revealing that *PALB2* is actually a linker between *BRCA1* and *BRCA2*[3]. The ATM gene, located on chromosome 11q 22–23, includes 66 exons with a 9168 base

pair coding sequence, and encodes a PI3K-related protein kinase (PIKK) that helps maintain genomic integrity. The PI3K-AKT-mTOR oncogenic pathway is frequently enhanced in prostate cancer playing a vital role in development and maintenance[4]. Figures 2 and 3 illustrate the excellent uniformity of coverage of key exons of *PALB2* and *ATM*, respectively.

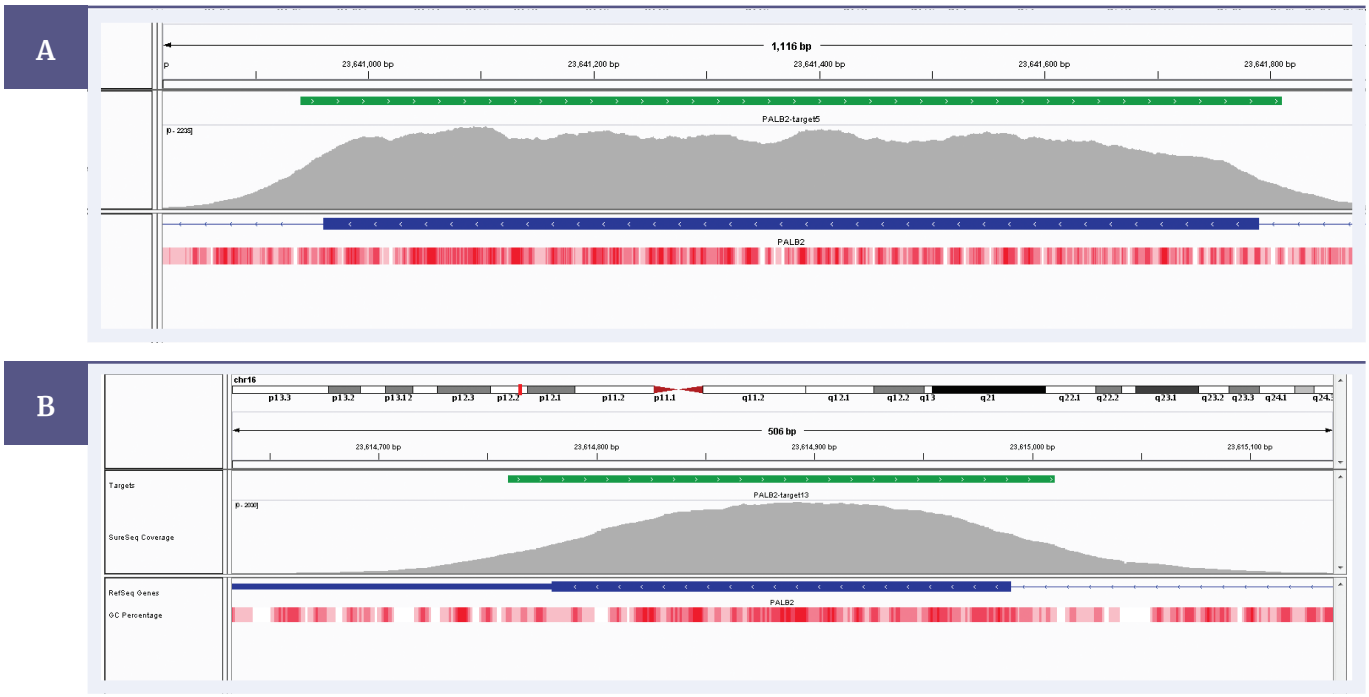

Figure 2: Illustration of the excellent uniformity of coverage of *PALB2* A exon 5 and B exon 13. Depth of coverage per base (grey). Targeted region (green). Gene coding region as defined by RefSeq (blue). GC percentage (red).

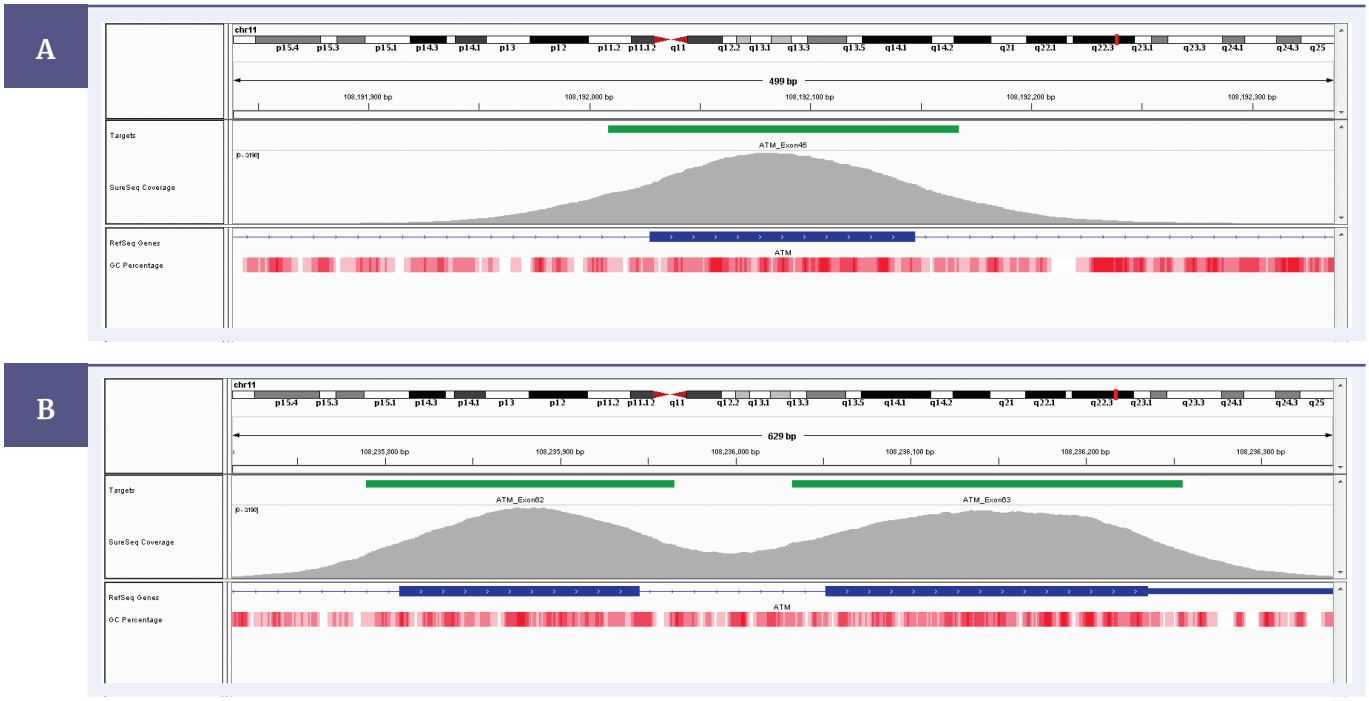

Figure 3: Illustration of the excellent uniformity of coverage of *ATM* A exon 45 and B exon 62. Depth of coverage per base (grey). Targeted region (green). Gene coding region as defined by RefSeq (blue). GC percentage (red).

SureSeq
myPanel

NGS Custom Prostate Cancer panel

Select from any of the following myPanel Prostate Cancer whole gene or exonic content below.

ATM	*BRCA1*	*BRCA2*	*PALB2*

Getting started with your next SureSeq myPanel NGS Custom Cancer panel could not be simpler

Ordering information

UK +44 (0) 1865 856800

US +1 914 467 5285

contact@ogt.com

ogt.com

Product	Contents	Cat. No.
SureSeq myPanel NGS Custom Prostate Cancer Panels	Enrichment baits; Interpret Software	Various
SureSeq FFPE DNA Repair Mix*	Enzyme, mix and buffers sufficient for 16 FFPE DNA samples	500079
SureSeq NGS Library Preparation Complete Solution (16)	Bundle of 1x SureSeq NGS Library Preparation Kit (16), containing adaptors, PCR primers and enzymes, 1x SureSeq NGS Index Kit – Collection A, 1x SureSeq NGS Hyb & Wash Kit (16), 1x Dynabeads M270 Streptavidin (2ml) and 1x AMPure XP beads (10ml). Sufficient for 16 samples	500084
SureSeq NGS Library Preparation Complete Solution (48)	Bundle of 1x SureSeq NGS Library Preparation Kit (48), containing adaptors, PCR primers and enzymes, 1x SureSeq NGS Index Kit – Collection B, 3x SureSeq NGS Hyb & Wash Kit (16), 3x Dynabeads M270 Streptavidin (2ml) and 3x AMPure XP beads (10ml). Sufficient for 48 samples	500085

*The SureSeq FFPE DNA Repair Mix can only be purchased in conjunction with SureSeq NGS panels, not as a standalone product.

References

1. Thoma, C, (2015) The complex relationships of malignant cells in lethal metastatic castration-resistant disease, Nature Reviews Urology 12, 237
2. Castro, E. *et al.*, (2012) The role of *BRCA1* and *BRCA2* in prostate cancer. Asian Journal of Andrology, 14 (3):409-414.
3. Pakkanen, S. *et al.*, (2009) *PALB2* variants in hereditary and unselected Finnish Prostate cancer cases. Journal of Negative Results in BioMedicine, 8 (1).
4. Angèle, S. *et al.*, (2004). *ATM* polymorphisms as risk factors for prostate cancer development. British Journal of Cancer, 91(4): 783–787.

A Sysmex Group Company

What binds us, makes us.

Oxford Gene Technology Ltd., Begbroke Science Park, Woodstock Road, Begbroke, Oxfordshire, OX5 1PF, UK