SureSeq myPanel

A Sysmex Group Company

NGS custom Colorectal cancer panel

Features

Hybridisation-based enrichment delivering unparalleled coverage uniformity

- Detect low frequency colorectal cancer variants consistently with confidence

Pre-optimised panels that meet your technical requirements and work with your samples

- No more lengthy in-house optimisation, decreasing assay development time

Bespoke panel content

- Sequence only what's relevant for your cancer research, increase throughput and save on sequencing reagents

Panel content designed with experts and from current literature to target all relevant regions including intronic and splice sites

- Get the most comprehensive insight into disease-driving mutations

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Introduction

Colorectal cancer (CRC) is the third most common cancer in men (746,000 cases, 10.0% of the total) and the second in women (614,000 cases, 9.2% of the total) worldwide[1].
Next generation sequencing (NGS) has enabled the simultaneous study of mutations in high-penetrance colorectal cancer genes. These include *KRAS*, *APC* and *TP53* as well as more moderate-risk genes such as *ERBB2*, *PTEN* and *BRAF*[2].

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

Superior Coverage Uniformity

KRAS mutations are found in approximately 35–45% of colorectal cancers with around 80% occurring in codon 12 and 15% in codon 13 of exon 2; other commonly reported mutations are found in exons 3 and 4[3]. The tumor suppressor gene *APC* plays an important role in CRC development. Absence of the *APC* protein leads to accumulation of betacatenin in the cytoplasm, which may contribute to tumour progression. 60% of all somatic mutations in *APC* occur within the mutation cluster region between codons 1286 and 1513 on exon 15[4]. Figures 1 and 2 illustrate the superior uniformity of coverage of these key genomic regions.

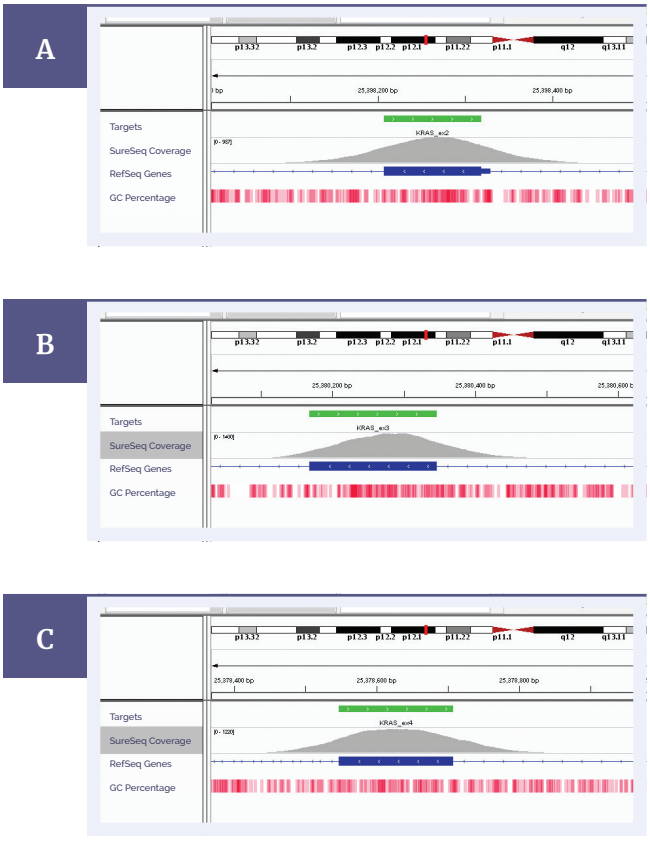

Figure 1: *KRAS* coverage of A exon 2, B exon 3 and C exon 4.

Figure 2. *APC* exon 15 coverage. Depth of coverage per base (grey). Targeted region (green). Gene coding region as defined by RefSeq (blue). GC percentage (red).

Approximately 8-15% of colorectal cancers involve mutations in the *BRAF* gene, with up to 90% of these a result of a mutation at V600E, located on exon 15[5]. In *TP53*, another frequently mutated cancer gene, point mutations are predominantly located in exons 5-8[2], however sequencing is often hampered by the GC-rich content, which can lead to technical challenges in assay design and analysis. OGT's innovative bait design overcomes this issue, offering a high level of uniform coverage for these difficult genes to sequence in FFPE samples (Figure 3 and 4).

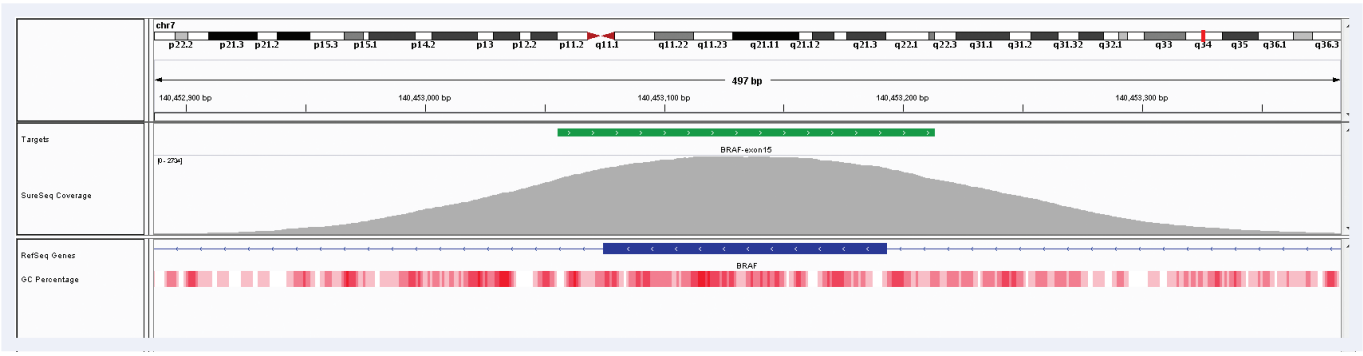

Figure 3: Illustration of the excellent uniformity of coverage of *BRAF* exon 15. Depth of coverage per base (grey). Targeted region (green). Gene coding region as defined by RefSeq (blue). GC percentage (red).

Figure 4: Illustration of the excellent uniformity of coverage of *TP53* exons 3 - 9. Depth of coverage per base (grey). Targeted region (green). Gene coding region as defined by RefSeq (blue). GC percentage (red).

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Select from any of the following myPanel colorectal cancer whole gene or exonic content below

APC	*BRAF*	*CDH1*	*CHEK2*	*CTNNA1*	*ERBB2*	*HRAS*	*KRAS*
MET	*MSH6*	*NRAS*	*PIK3CA*	*PTEN*	*SMAD4*	*STK11*	*TP53*

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

Talk to us about your custom colorectal cancer NGS panel requirements and let our expertise work in helping you to advance your cancer research

Ordering information

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Product	Contents	Cat. No.
SureSeq myPanel NGS Custom Colorectal Cancer Panel	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

References

1. http://globocan.iarc.fr/Pages/fact_sheets_cancer.aspx
2. Han *et al.*, PLoS One. 2013; 8(5): e64271
3. Tan *et al.*, World J Gastroenterol. 2012 Oct 7; 18(37): 5171–51804
4. More, *et al.*, Hum Mol Genet (1992) 1 (4): 229-233
5. https://www.mycancergenome.org/content/disease/colorectal-cancer/braf/54/

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

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What binds us, makes us.

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