SureSeq

A Sysmex Group Company

FFPE DNA Repair Mix

Features

Optimised to repair a broad range of damage in FFPE-derived DNA

- Remove artefacts caused by fixation and long-term storage

Improves NGS library yields, %OTR and mean target coverage

- Get excellent sequencing data for confident variant calling from FFPE DNA

Allows decreased amount of input DNA

- Preserve your precious samples and get meaningful results from as little as 100 ng of FFPE DNA

SureSeq

FFPE DNA Repair Mix

Repair a broad range of damage in FFPE-derived DNA

Don't let the quality and quantity of your FFPE samples hold back your NGS discoveries.

Detection of single nucleotide variants (SNVs) and insertion/deletions (indels) using next generation sequencing (NGS) is gaining increasing importance in research into cancer development and progression. Tissue biopsies are typically archived as formalin-fixed, paraffinembedded (FFPE) blocks, which preserve tissue morphology and allow long-term storage at room temperature.

However, the methods used for fixation significantly damage and compromise the quality of nucleic acids from these samples. Consequently, it may be difficult to distinguish between true and damage-induced lowfrequency mutations in such samples. The SureSeq™ FFPE DNA Repair Mix is a mixture of enzymes that has been optimised to remove a broad range of damage that can cause artefacts in sequencing data (Table 1).

Damage	Repaired?
Deamination of cytosine to uracil	✔
Nicks and gaps	✔
Oxidised bases	✔
Blocked 3' ends	✔
DNA fragmentation	✗
DNA-protein crosslinks	✗

Table 1: The SureSeq FFPE DNA Repair Mix is capable of removing a variety of DNA damage caused by fixation and long-term storage.

Improved NGS library yields, on-target rates (%OTR) and mean target coverage

Obtaining high-quality NGS libraries from FFPE-derived DNA can be a challenging task due to DNA degradation. SureSeq FFPE DNA Repair Mix has been shown to significantly improve NGS library yields, preserving original complexity and delivering high-quality sequencing data for confident calling of variants with low variant allele frequency (VAF)(Figure 1).

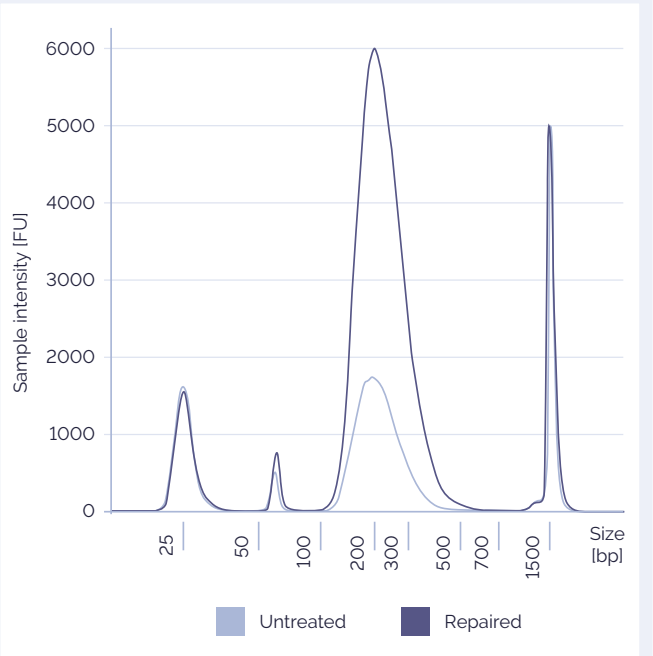

Figure 1: Example traces from the Agilent® TapeStation illustrating the improvement in pre-capture NGS library yields. Input: 100 ng FFPE DNA.

One way of increasing NGS test sensitivity is to sequence to very high depths by reducing the number of samples in a run. This approach, however, increases the cost of sequencing reagents per sample processed. By repairing your DNA you can maximise depth of coverage as well as %OTR and therefore increase the sensitivity of your assay without compromising on cost or throughput (Figure 2).

More accurate data with lower input DNA

Pathology labs often have to work with very limited amounts of material. Additionally, FFPE samples are usually irreplaceable. This leads to the need to reduce DNA input in downstream applications including NGS. Often ampliconbased approaches are chosen as they require very little input material. Unfortunately, due to PCR bias and lower complexity from smaller input amounts, these methods are not well suited to detect low-frequency mutations in heterogenous tumour samples.

Hybridisation-based approaches eliminate the problem of PCR bias providing much more reliable data but they typically require higher DNA inputs of 500 ng – 1 µg. Using the SureSeq FFPE DNA Repair Mix a reduction in the amount of starting material down to 100 ng depending on required depth of coverage is possible (Figure 3).

For more information about the SureSeq FFPE DNA Repair Mix, or any NGS cancer analysis products visit ogt.com/sureseq or contact us at contact@ogt.com.

Figure 2: The SureSeq FFPE DNA Repair Mix significantly improves mean target coverage resulting in more confident calls. Data obtained using 500 ng of FFPE DNA from ovarian and colon cancer samples; 16 samples per MiSeq lane.

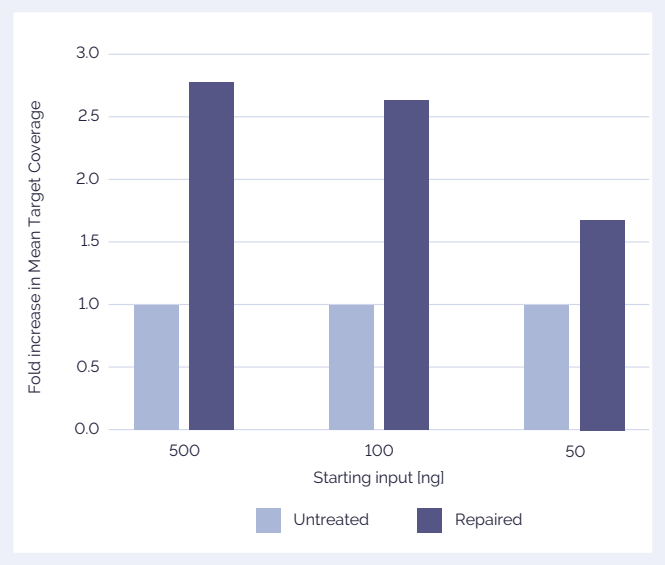

Figure 3: The SureSeq FFPE DNA Repair Mix allows reduced amount of DNA input by improving mean target coverage. Data obtained using 500, 100 and 50 ng of FFPE DNA.

Ordering information

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Product	Contents	Cat. No.
SureSeq FFPE DNA Repair Mix (16 reactions)*	Enzyme mix and buffer 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
SureSeq NGS Cancer panels	Enrichment baits; Interpret Software	various

*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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