GE Healthcare
Life Sciences



# illustra™ ExoProStar™ S

ExoProStar **S** is optimized to purify PCR and sequencing setup reactions quickly, efficiently, and reliably.

ExoProStar **S** contains illustra Shrimp Alkaline phosphatase and Exonuclease I, formulated to work together to remove unincorporated primers and nucleotides from amplification reactions in preparation for sequencing, cloning, genotyping or further DNA modification reactions.

- Enzymes optimized to work together for high efficiency removal of unincorporated primers and nucleotides
- Enzymes provided in two separate tubes, just two simple pipetting steps are needed to prepare the reaction
- Fast 15 min protocol
- Scalable for different reaction sizes
- No loss of PCR product
- Easy to automate
- Complete heat inactivation of the enzymes within 15 min

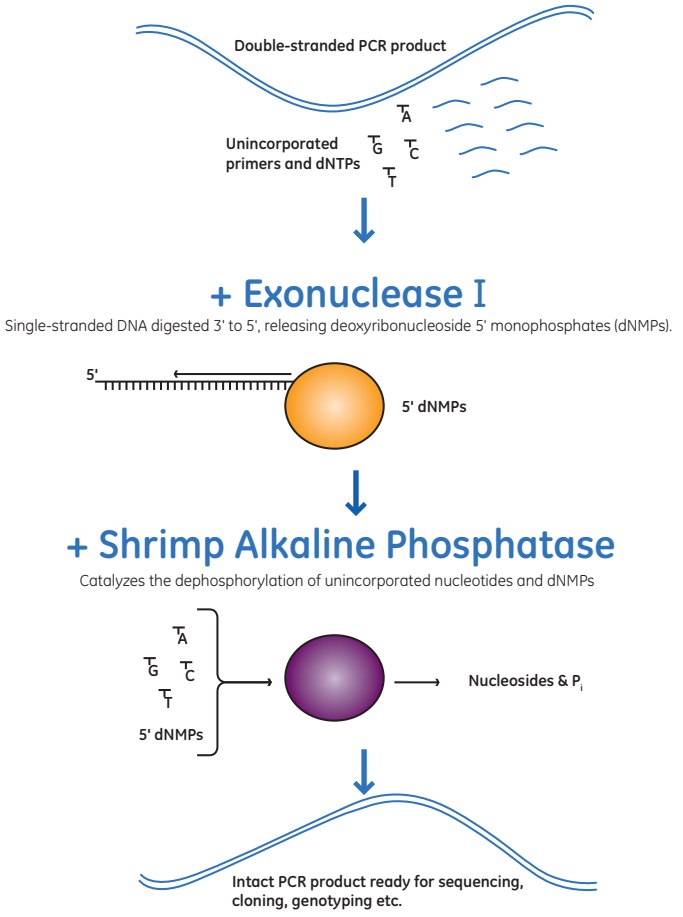


**Fig 1.** Schematic representation of the PCR cleanup process using ExoProStar **S**.

## Optimized for efficient primer digestion

ExoProStar **S** has been optimized for highly efficient primer digestion, helping to improve the quality of downstream analysis.

## No loss of PCR product

The use of an enzymatic digestion approach to clean up amplification reactions reduces losses of PCR product. The process has no intermediate transfer steps, spin columns or binding matrix to retain your PCR product, and double-stranded DNA is left intact by the Exonuclease I and Alkaline Phosphatase enzymes. The size of the PCR fragment does not affect the cleanup efficiency of the reaction (Fig 2).

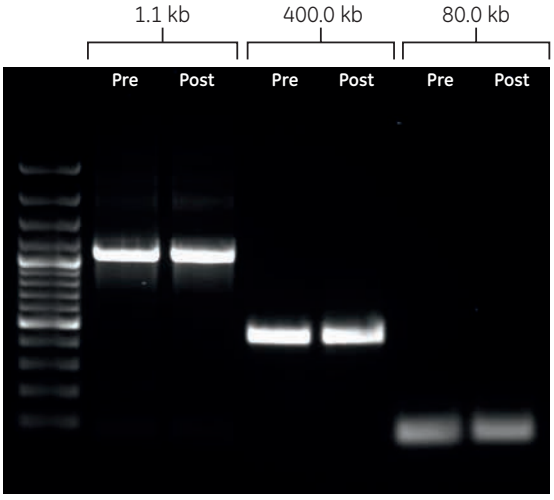


**Fig 2.** Agarose gel electrophoresis of different size PCR products pre- and post-digestion with ExoProStar **S**. The samples were digested for 5 min at 37°C followed by denaturation at 80°C for 10 min according to kit protocol. We did not detect any loss of PCR product in any of the samples.

## High-quality sequencing results

Removal of unincorporated primers and nucleotides is essential to high-quality DNA sequencing. Failure to fully remove these components leads to high background signals and miscalling of bases. With ExoProStar **S**, Phred20 quality scores were routinely achieved at read lengths > 800 bp, equivalent to or better than other approaches to sample preparation (Fig 3).

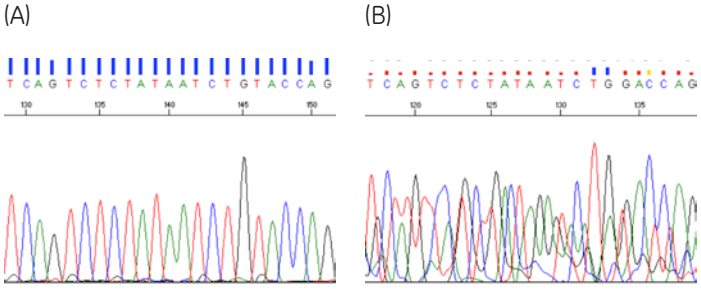


**Fig 3.** The importance of sample clean up before DNA sequencing is illustrated in the comparison between panel A, showing PCR sequence quality following treatment with ExoProStar **S** and panel B showing sequence quality without this treatment. Read length, base calling and sequence quality are significantly improved by the use of ExoProStar **S**.

## Heat inactivation of ExoProStar **S** enzymes

Downstream operations can be adversely affected by the presence of active Exonuclease I or Alkaline Phosphatase in the PCR product following digestion. It is therefore essential that the enyzmes are effectively denatured during the post-digestion heating step.

Some alkaline phosphatase enzymes are tolerant of high temperature treatment and may retain some activity causing problems in later processes. Shrimp Alkaline Phosphatase has been optimized to be quickly denatured, reducing the risk of downstream interference (Fig 4).

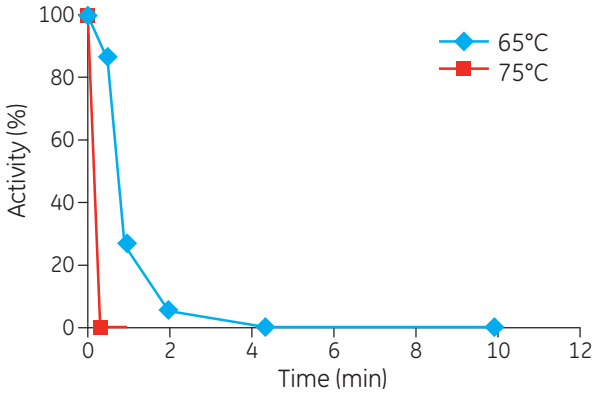


**Fig 4.** Temperature denaturation profile of Shrimp Alkaline Phosphatase at 65°C showing rapid and complete denaturation within 10 min. ExoProStar **S** protocol recommends denaturation of the enzyme components at 80°C, providing greater confidence in the inactivation of both enzymes prior to further downstream processes.

## Kit components and storage

ExoProStar **S** kit contains one tube of illustra Exonuclease I and one tube of Shrimp Alkaline Phosphatase. The kit is supplied on dry ice and should be stored at -20°C. Enzymes can be sub-aliquoted if required for storage convenience and should be maintained on ice during reaction setup.

# Ordering information

## *ExoProStar S Enzymatic PCR and Sequence Reaction Cleanup Kit*

| Quantity | Code number |
|---|---|
| 20 reactions | US79002 |
| 100 reactions | US79010 |
| 500 reactions | US79050 |
| 2000 reactions | US79200 |
| 5000 reactions | US79500 |

# Related products

## *Amplification*

| Product | Quantity | Code number |
|---|---|---|
| dNTP set (100 mM each A,C,G,T) | 4 × 100 µmol | 28-4065-52 |
| Illustra Ready-To-Go™ RT-PCR Beads (0.2 ml hinged tube with cap) | 96 reactions | 27-9259-01 |
| Illustra PuReTaq™ Ready-To-Go PCR Beads (0.2 ml hinged tube with cap) | 96 reactions | 27-9559-01 |
| Illustra Hot Start Mix RTG™ (0.2 ml tubes, 12 × 8 strip wells) | 96 reactions | 28-9006-53 |
| Taq DNA Polymerase (cloned) | 4 × 250 units | 27-0798-05 |

## *DNA labeling*

| | | |
|---|---|---|
| Cy™5 dUTP | 250 nmol | PA55032 |
| Cy3 dUTP | 250 nmol | PA53032 |
| Cy5 dCTP | 250 nmol | PA55031 |
| Cy3 dCTP | 250 nmol | PA53031 |
| CyDye™ Post-Labeling Reactive Dye Pack | 12 × Cy3<br>12 × Cy5 | RPN5661 |

## *DNA purification*

| | | |
|---|---|---|
| illustra blood genomicPrep Mini Spin Kit | 50 | 28-9042-64 |
| illustra tissue and cells genomicPrep Mini Spin Kit | 50 | 28-9042-75 |
| illustra bacteria genomicPrep Mini Spin Kit | 50 | 28-9042-58 |

## *DNA cleanup*

| | | |
|---|---|---|
| illustra GFX™ PCR DNA and Gel Band Purification Kit | 100 purifications | 28-9034-70 |
| illustra GFX 96 PCR Purification Kit | 10 × 96 well plates | 28-9034-45 |
| illustra MicroSpin™ S-400 HR columns | 50 | 27-5140-01 |
| illustra MicroSpin S-300 HR columns | 50 | 27-5130-01 |

## *Enzymes*

| | | |
|---|---|---|
| illustra Shrimp Alkaline Phosphatase | 500 units | E70092Y |
| illustra Exonuclease I | 2500 units | E70073Z |

For local office contact information, visit
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