



*Tired of
dancing around?*

One step and you're done.



USB® ExoSAP-IT® PCR Product Cleanup means the ease of one-step purification.

The ExoSAP-IT method is a unique, one-step enzymatic cleanup of PCR products.

- **100% sample recovery** – no loss of PCR products regardless of the fragment size
- **Removes excess primers and dNTPs** – does not interfere with downstream applications
- **Superior results with ExoSAP-IT reagent** – improve accuracy with higher yields and full PCR product recovery

USB ExoSAP-IT PCR Product Cleanup – available for standard and high-throughput, automated platforms

One-step enzymatic cleanup of PCR products

The ExoSAP-IT method is a unique, one-step enzymatic cleanup of PCR products that eliminates unincorporated primers and dNTPs so they do not interfere with downstream sequencing or SNP analysis. The ExoSAP-IT cleanup reagent, based on Exonuclease I and Shrimp Alkaline Phosphatase, Recombinant (rSAP) is added directly to the PCR product to degrade primers and dephosphorylate dNTPs that were not consumed in the reaction (Figure 1). Since ExoSAP-IT reagent is active in commonly used PCR buffers, no buffer exchange is required. Treatment is carried out for 15 minutes at 37°C and is followed by a 15 minute incubation period at 80°C to completely inactivate both enzymes. PCR products are then immediately ready for downstream sequencing reactions without any additional manipulation.

- **One-tube/one-step PCR cleanup** – Add ExoSAP-IT reagent directly to PCR product
- **Eliminate spin columns** – Decrease time and expense while increasing yield
- **Conserve PCR samples** – 100% recovery of both short and long PCR products for accurate sequencing results (Figure 2)
- **Stable at 25°C for 8 hours** – Retains full functional activity and is stable at 4°C for one week

- **Green option** – Generate less waste with our single-tube solution to PCR purification vs. columns
- **Sole source** – Affymetrix is the only manufacturer of USB ExoSAP-IT reagent, ensuring your lab of product consistency and integrity

ExoSAP-IT PCR Product Cleanup

78250	20 reactions
78200	100 reactions
78201	500 reactions
78202	2,000 reactions
78205	5,000 reactions

Fig. 1. ExoSAP-IT PCR Product Treatment Overview

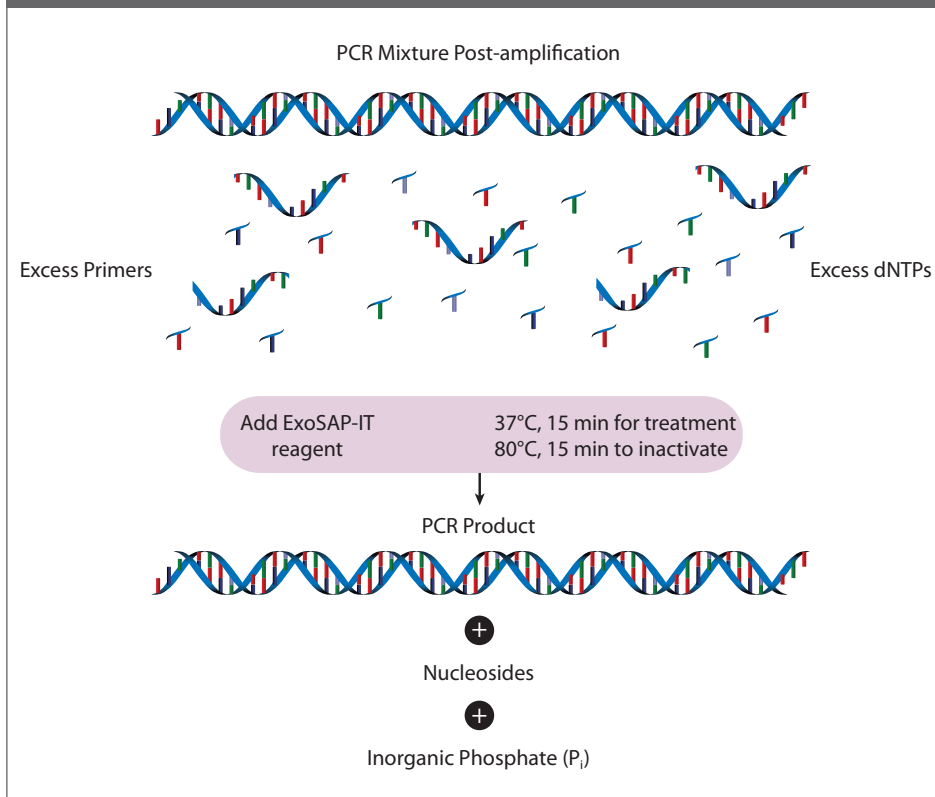
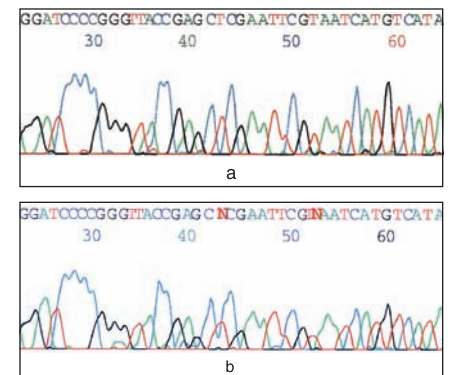


Fig. 2. Achieve high data quality from PCR products



Fluorescent sequencing results of a 100 bp pUC18 PCR fragment sequenced with a -20 Fwd primer using fluorescent sequencing reagents. PCR cleanup performed with: (a) ExoSAP-IT reagent; (b) a column designed for PCR cleanup. Base miscalls in (b) are due to inherently low yields of short PCR products when using columns.

USB HT ExoSAP-IT High-Throughput PCR Product Cleanup

USB HT ExoSAP-IT High-Throughput reagent is an alternative formulation of ExoSAP-IT PCR Product Cleanup specifically designed for the unique requirements of high-throughput, automated platforms. HT ExoSAP-IT reagent has a decreased viscosity for robotic pipetting, yet maintains the same convenience and stability that you have come to expect from the ExoSAP-IT method. HT ExoSAP-IT High-Throughput PCR Cleanup reagent is designed to provide accurate and consistent results in high-throughput applications.

- **High-throughput processing** – Even faster time to results with a low viscosity formulation allowing robotic pipetting
- **Scalable** – Treat reaction volumes from 5 µl to 5 L
- **Convenient packaging** – Available in 8-tube strips and 96-well formats

High quality—Accurate results

In comparison to competitor products, HT ExoSAP-IT reagent allows for longer read lengths and greater confidence in the accuracy of those reads than did the alternative, AMPure® XP beads. Sequencing data revealed that the bead-purified DNA had base miscalls, which is likely an effect of sample loss. HT ExoSAP-IT-treated samples showed no miscalls and had 100% recovery (Figure 3).

100% recovery from a range of fragment sizes with HT ExoSAP-IT reagent

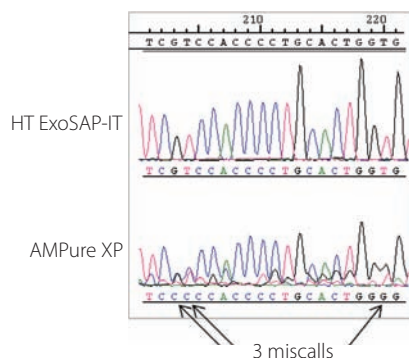
HT ExoSAP-IT reagent ensures 100% recovery and provides effective cleanup of all amplicon sizes (Figure 4).



HT ExoSAP-IT High-Throughput PCR Product Cleanup

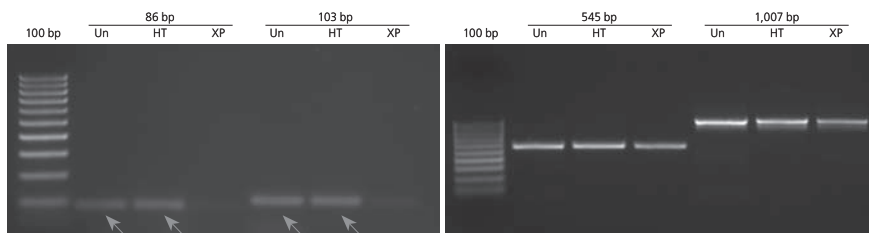
78395	480 reactions x 8-tube strip
	5,760 reactions x 1 plate (12 x 8-tube strips)
	23,040 reactions x 4 plates
	1,000 reactions (2 ml)
	5,000 reactions (10 ml)

Fig. 3. High data quality with high-throughput processing



Sequencing of a 1,007 bp treated PCR product. A 1,007 bp fragment was amplified and treated with HT ExoSAP-IT reagent (above) or Agencourt AMPure XP beads (below) and sequenced. Pherograms revealed no miscalls with HT ExoSAP-IT but three miscalls with Agencourt® AMPure XP beads at position 203, 204, and 220.

Fig. 4. 100% recovery of PCR product with HT ExoSAP-IT reagent



Greater recovery of PCR product with HT ExoSAP-IT reagent. Equivalent volumes of PCR product were visualized on an ethidium bromide agarose gel and the band volume determined using image analysis. HT-ExoSAP-IT reagent allowed recovery of 100% of the 86 and 103 bp PCR products but AMPure XP beads allowed only 8 and 14% recovery, respectively. Un – Untreated, HT – HT-ExoSAP-IT treated, XP – AMPure XP purified, 100 bp – Affymetrix 100 bp ladder, bands from 100 to 1,000 bp by 100 bp intervals (PN 76712).

Related products

End Point PCR

Standard

71160	Taq DNA Polymerase
71162	Taq PCR Master Mix (2X)
71190	RubyTaq™ DNA Polymerase
71191	RubyTaq PCR Master Mix (2X)

Long and accurate PCR

71180	FideliTaq™ DNA Polymerase
71182	FideliTaq PCR Master Mix (2X)
71155	HotStart-IT® FideliTaq DNA Polymerase
71156	HotStart-IT FideliTaq PCR Master Mix (2X)

Hot start

71195	HotStart-IT Taq DNA Polymerase
71196	HotStart-IT Taq PCR Master Mix (2X)
71194	HotStart-IT Binding Protein

Hot start multiplex

MP1100	Promoter Methylation PCR Kit
71199	MagniTaq™ Multiplex PCR Master Mix

Real-Time qPCR

Components & kits

75780	First-Strand cDNA Synthesis Kit for Real-Time PCR
71170	VeriQuest™ Taq DNA Polymerase

SYBR

75600	VeriQuest SYBR® Green qPCR Master Mix (2X)
75665	VeriQuest SYBR Green qPCR Master Mix with Fluorescein (2X)
75690	VeriQuest Fast SYBR Green qPCR Master Mix (2X)
75675	VeriQuest Fast SYBR Green qPCR Master Mix with Fluorescein (2X)

75762	HotStart-IT SYBR Green qPCR Master Mix (2X)
-------	---

75760	HotStart-IT SYBR Green qPCR Master Mix with UDG (2X)
-------	--

Probe

75650	VeriQuest Probe qPCR Master Mix (2X)
-------	--------------------------------------

75660	VeriQuest Probe qPCR Master Mix, No Reference Dye (2X)
-------	--

75680	VeriQuest Fast Probe qPCR Master Mix (2X)
-------	---

75685	VeriQuest Fast Probe qPCR Master Mix, No Reference Dye (2X)
-------	---

75766	HotStart-IT Probe qPCR Master Mix (2X)
-------	--

75764	HotStart-IT Probe qPCR Master Mix with UDG (2X)
-------	---

Real-Time Reverse Transcription PCR (qRT-PCR)

One-step master mixes

75705	VeriQuest SYBR Green One-Step qRT-PCR Master Mix (2X)
-------	---

75715	VeriQuest SYBR Green One-Step qRT-PCR Master Mix with Fluorescein (2X)
-------	--

75700	VeriQuest Probe One-Step qRT-PCR Master Mix (2X)
-------	--

75710	VeriQuest Probe One-Step qRT-PCR Master Mix, No Reference Dye (2X)
-------	--

75770	HotStart-IT SYBR Green One-Step qRT-PCR Master Mix Kit
-------	--

75772	HotStart-IT Probe One-Step qRT-PCR Master Mix Kit
-------	---

Kits

75780	First-Strand cDNA Synthesis Kit for Real-Time PCR
-------	---

Reverse Transcription RT-PCR

One-step master mix

78370	RT-PCR Master Mix (2X)
-------	------------------------

71185	FideliTaq RT-PCR Master Mix (2X)
-------	----------------------------------

Kits

78350	One-Step RT-PCR Kit
-------	---------------------

78355	Two-Step RT-PCR Kit
-------	---------------------

PCR Components

Nucleotides

77212	10 mM PCR Nucleotide Mix
-------	--------------------------

77119	25 mM PCR Nucleotide Mix
-------	--------------------------

77330	10 mM PCR Nucleotide Mix with dUTP
-------	------------------------------------

Reaction buffers

71165	PCR Reaction Buffer with MgCl ₂ , 10X
-------	--

71166	PCR Reaction Buffer without MgCl ₂ , 10X
-------	---

Reagents

77507	Betaine, 5 M Solution
-------	-----------------------

71786	Nuclease-Free Water
-------	---------------------

Affymetrix, Inc.

USB® Products

26111 Miles Road
Cleveland, Ohio 44128
Tel: 888-362-2447 | 216-765-5000
Fax: 800-535-0898 | 216-464-5075
USBcustomerserv@affymetrix.com
usb.affymetrix.com

Affymetrix UK Ltd.

USB® Products

Voyager, Mercury Park,
Wycombe Lane, Wooburn Green,
High Wycombe HP10 0HH, United Kingdom
Tel: +44 (0)1628 55 2600
Fax: +44 (0)1628 55 2675
USBcustomerserveurope@affymetrix.com

Affymetrix Pte Ltd

USB® Products

7 Gul Circle, #2M-01
Keppel Logistics Building
Singapore 629563
Tel: +65 63957301
Fax: +65 63957300
USBcustomerserv@affymetrix.com

usb.affymetrix.com Please visit our website for international distributor contact information.

For research use only. Not for use in diagnostic procedures.

© 2011 Affymetrix Inc. All rights reserved.

Affymetrix, USB, ExoSAP-IT, and HotStart-IT are registered trademarks of Affymetrix, Inc. VeriQuest, FideliTaq, and MagniTaq are trademarks of Affymetrix, Inc. ExoSAP-IT is covered by US Patent Nos. 6,379,940 and 6,387,634. Exonuclease I/Shrimp Alkaline Phosphatase – This product is licensed under US Patent Nos. 5,741,676 and 5,756,285, and corresponding patents issued in other countries. Purchase of this product includes a license to use this product in a restricted way within the scope of rights granted to USB by GE Healthcare. No other license is granted to the purchaser either directly or by implication, estoppel or otherwise. HotStart-IT Taq DNA Polymerase – Methods for using this product may be covered by US Patent No. 7,700,281. SYBR is a registered trademark of Molecular Probes, Inc. and is provided under an agreement with Molecular Probes, Inc. Agencourt and AMPure are registered trademarks of Agencourt.