

Genomic Reagent Solutions

Next-Generation Sequencing Cleanup & Size Selection





From the Human Genome Project to today's quest for precision medicine, we've long invested in providing genomic products that reduce complexity and improve productivity.

Our reagent portfolio is powered by SPRI technology, which uses paramagnetic beads to selectively bind nucleic acids by type and size.

SPRI reagents enable our chemistries to deliver high-performance isolation, purification and cleanup protocols supporting applications such as qPCR, ddPCR, Sanger sequencing, microarrays and next-generation sequencing (NGS). And they can be used interchangeably between manual methods and automated methods on our Biomek liquid handlers, including the Biomek NGeniuS Next Generation Library Prep System combining optimum performance with unprecedented flexibility.

AMPure XP reagent

The gold standard in bead-based NGS cleanup and size selection

Maximizing recovery, consistency, and speed to facilitate the entire NGS workflow, AMPure XP reagent meets the stringent needs of today's genomic applications and minimizes the risk of losing important genetic information.

That's why it's suggested in over 200 library preparation kits, including those from the industry's most trusted sequencing companies.

- Works with DNA
- High recovery of amplicons, greater than 100 bp
- Efficient removal of unincorporated dNTPs, primers, primer dimers, salts and other contaminants



Studies by Mikheikin, A., et al. suggest that AMPure XP would be the best choice for DNA analyses requiring higher analytical stringency in comparison to other purification kits.*

Consistent yields and recovery are crucial in NGS

Cleanup kits are a pivotal part of the NGS process. They have an immediate impact on efficiency and on quality, as well as key impacts downstream. For optimal quality and efficiency, the percent yield should be between 80% and 95%. Not all cleanup kits can achieve consistently high yield.



*High-speed atomic force microscopy revealing contamination in DNA purification systems. Anal. Chem. 88:5, 2527-2523 (2016) doi: 10.1021/acs.analchem.5b04023

SPRIselect reagent

SPRI paramagnetic bead-based chemistry for simple & speedy size selection

SPRIselect reagent gives you more flexibility and control over the size selection process. Harnessing the power of SPRI technology, it provides robust, reproducible and customizable size selection with minimal lot-to-lot variance.

- Works with fragmented DNA
- Tunable from 150 to 800 base pairs to offer easy adjustments for specific applications and sequencers
- Predictable, consistent size selection between runs and reagent lots
- Scalable from manual to automated workflows for high-throughput processing in 96-well plates
- Suggested for use in over 40 library preparation kits

Room temperature storage frees up valuable $4\,{}^\circ\text{C}$ space and gives confidence for ambient temperature shipping

Store At Room Temperature

Don't worry about finding room in the crowded freezer—you can store SPRIselect reagent at room temperature, right on your bench. And because you don't have to wait for it to warm up, you can streamline your workflow, minimize hands-on time and start your library preparations sooner.

Cleanup Time

SPRIselect reagent and two other commercially available kits were used for size selection on sheared gDNA from E. coli. The graph represents the time for single size selection or cleanup. The SPRIselect reagent workflow for a single size selection is 4.2 and 2 times faster than Pronex and Omega, respectively. The times were based on performing size selection for 8 samples manually.





RNAClean XP reagent

The only cleanup kit with non-detectable levels of RNase

Thanks to our proprietary SPRI paramagnetic bead-based chemistry, RNAClean XP reagent enables you to purify RNA and cDNA from common enzymatic reactions and helps to ensure efficient recovery of your samples.

- Works with RNA and cDNA
- Compatible with manual and automated processing
- Complete removal of salts, unincorporated primers and dNTPs
- Simple automation-friendly protocol with no centrifugation, filtration or precipitation steps
- Suggested for use in over 20 RNA-seq library preparation kits



Simple, Flexible & Highly Reproducible

The RNAClean XP reagent doesn't use organic solvents, vacuum filtration, or centrifugation, and delivers superior nucleic acid recovery and purity for use in downstream applications.



Three starting concentrations were purified using RNAClean XP reagent. They all had a percent yield that was similar, and the average recovery was 78% with a σ 2 of 10%.

Selecting the right reagent

Here's a quick guide to help you choose the right reagent for your genomic application



Complete your workflows with our genomic reagents

NGS library preparation can be complemented by our growing portfolio of genomic solutions, which currently includes nucleic acid extraction and purification solutions for a range of input material, as well as automated and semi-automated devices. Our high-performance SPRI bead technology uses magnetic beads to selectively immobilize nucleic acids by type and size, and optimized binding conditions enable highly specific separation and cleanup protocols.

Nucleic Acid Purification



AMPure XP Bead-Based Reagent

- Removes primers, unincorporated dNTPs, primer dimers, salts and other contaminants
- Eliminates fragments < 50 bp
- Recovers both double- and single-stranded DNA templates
- No PCR degradation after storage at 4° C for 7 days
- Captures DNA > 100 bp

Nucleic Acid Purification



RNAClean XP Reagent

- Certified RNAse-free
- Complete removal of salts, unincorporated primers and dNTPs
- Used in RNA-Seq library preparations

Size Selection



SPRIselect Bead-Based Reagent

- Used for fragment size selection for library construction in NGS workflows
- Validated for target fragments between 150 bp to 800 bp in length
- Tight manufacturing specifications ensure run-to-run and lot-to-lot reproducibility

Nucleic Acid Purification



CleanSEQ Reagents

- A rapid, high-performance dye-terminator removal process using SPRI technology
- Produces sequences with longer Phred 20 read lengths and higher signal intensities than any other purification technology

RNA Isolation



RNAdvance Extraction Kit

- Blood, Cell, Tissue and Viral kits
- Extract RNA from blood (PAXgene tubes), cultured eukaryotic cells, tissue, or saliva and swab transport media
- Produce high-quality RNA compatible with a variety of analysis techniques, such as NGS, microarray, or qRT-PCR

DNAdvance Extraction Kit

- A SPRI paramagnetic bead-based extraction system to isolate genomic DNA
- DNA from Tissue, Saliva, and Buccal swab
- Higher recovery and purity of gDNA comparing automated vs. manual protocols

GenFind V3 Extraction Kit

- Extraction and purification of gDNA from whole blood (fresh or frozen), serum, cultured cells, dry blood spots, mouthwash, saliva, bacteria, fungi, and mammalian tissue (fresh or frozen)
- High recovery of quality DNA for downstream applications, such as NGS library construction and PCR

FormaPure Total Extraction Kit

- An extraction kit to isolate DNA and RNA from formalin-fixed, paraffin-embedded (FFPE) tissue samples
- High performance for yield, integrity, and purity
- Single chemistry system compatible with manual and automated processing of DNA and RNA from a single sample

Apostle MiniMax[™] Kits

- High Efficiency cfDNA Isolation Kit
- Isolates cfDNA from 1-5mL of plasma for liquid biopsy
- Demonstrated compatibility with a variety of collection tubes

DNA Isolation



DNA Isolation



DNA & RNA Isolation



cfDNA Extraction



One trusted partner for automated liquid handlers, consumables and service

Acoustic and tip-based technologies for low- to high-volume transfers

Strike NGS workflow gold with our broad portfolio of automated liquid handling solutions that leverage precise methods and custom applications for standard and reduced reaction volumes, delivering reliable, highthroughput results.

Our solutions can help you and your lab:

- Realize a new level of cost savings and throughput
- Achieve end-to-end NGS automation at standard and reduced reaction volumes
- Easily automate your current and future workflows
- Deliver results with confidence by generating highquality sequencing data



Generate Accurate Data Faster by Automating Your NGS Workflow



Biomek Workstation Solutions for Genomic Applications

Biomek i5 Automated Genomic Workstations



- 25 deck positions to support mediumthroughput workflows
- Multichannel or Span-8 with gripper options

Biomek i7 Automated Genomic Workstations



- Spacious, open-platform with 45 deck positions for high-throughput applications
- Hybrid Workstation with Multichannel pod, Span-8 pod and two independent grippers (other pipetting configurations are possible as well)

Echo Liquid Handlers for Genomic Applications

Echo 650 Liquid Handler

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Echo acoustic liquid handling (LH) technology revolutionizes genomic applications by using sound energy to enable highly accurate, fully automated, noncontact dispensing of fluids in nL to µL volumes. By reducing reaction volumes, the Echo LH offers significant cost-savings in reagents, and considerable amount of time-savings for barcoding/indexing and normalization and pooling while preserving data quality.

Biomek NGeniuS Workstation

The latest in a long line of Smart Automation Technology

Inspired by Beckman Coulter's 30-plus years of laboratory automation and Smart Automation Technology, the Biomek NGeniuS Workstation represents an evolutionary leap in NGS liquid handling systems with its best-in-class performance, error reduction technology, ease-of-use, reduced hands-on time, and flexibility.



- Purpose-built NGS sample preparation system with flexible application selection and the ability to control user access
- Work-from-anywhere batch setup, and reagent preparation made easy with software derived Work Aid*



*Requires PC with Google Chrome or Microsoft Edge

Our reagents can help you get the data you need

Our genomic reagents lead the way in nucleic acid purification and cleanup technology. Collectively, they've helped generate research in over 20,000 scientific publications and are suggested for use in over 200 library preparation kits.

For more information, visit **beckman.com**.

*Certified RNAses-free as determined by non-detectable levels of RNAses.



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