NEWS on diagnostics

2020 PCR Special Edition (4)

Welcome to our last PCR special edition of News on Diagnostics. This series has covered the four main areas of PCR analysis – sample preparation, nucleic acid extraction and purification, amplification and in this edition, post-PCR clean up and ancillary reagents that are necessary for successful experimental design. You can subscribe and download any previous volumes here:

SigmaAldrich.com/newsondiagnostics

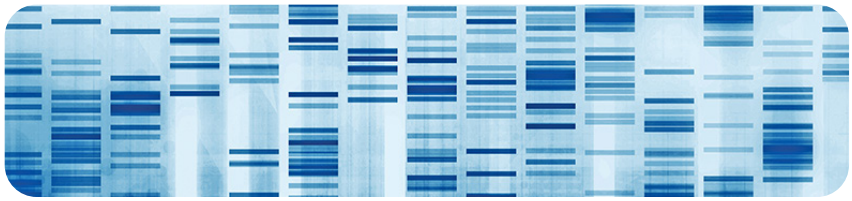
Highlights of this edition:

- Post-PCR Clean Up
- Rapid and Efficient Purification of DNA or RNA with MagPrep® Magnetic Beads
- Quality Ancillary Reagents

Post-PCR Clean Up

Downstream use of DNA from a PCR reaction often requires some sort of clean up. Commonly used methods include spin columns where other reaction components, such as enzymes, nucleotides, detergents, and primers either do not bind well or are removed during the wash steps.

Isolation of single- or double-stranded PCR amplification fragments can be achieved by gel purification. We provide GenElute™ PCR clean-up, agarose spin columns and minus EtBr (Ethidium Bromide) spin columns for purification of single or double stranded PCR amplification fragments as well as extraction of DNA fragments from EtBr stained agarose gels. Applications for these kits include enzymatic reactions, automated sequencing, cloning, microarray analysis, ligation, restriction enzyme digestions, and PCR.



Discover more here **SigmaAldrich.com/post-reaction-cleanup**

Cat. No.	Product Description	Starting Amount	Time Required	Expected Yield
PCR Clean-up				
11732676001 (250 preps) 11732668001 (50 preps)	High Pure PCR Product Purification Kit	100 µl	<10 minutes for PCR product, and purify DNA from agarose gel slices in <20 minutes	
4983912001 (200 preps) 4983955001 (50 preps)	High Pure PCR Cleanup Micro Kit	Varies	10 min	85% recovers up to 20 µg DNA
NA1020 (70 preps)	GenElute™ PCR Clean-Up Kit	100 µL or 10 µg of DNA	<10 min	Up to 95% recovery
PCR9601 (1 x 96-well) PCR9604 (4 x 96-well)	GenElute™ 96Well PCR Clean-up Kit	<100 µL PCR reaction	45 min per plate	75 – 95% recovery
D1947 (8RXN / 48RXN / 96RXN)	Diffinity RapidTip® for PCR Purification	25 µL	1 min	Up to 95% recovery
D1947L (8RXN / 48RXN / 96RXN)	Diffinity RapidTip® for PCR Purification, for Rainin LTS®	25 µL	1 min	Up to 95% recovery
D2947 (8RXN / 48RXN / 96RXN)	Diffinity RapidTip®2 with polymerase removal	50 µL	1 min	Up to 95% recovery
D2947L (8RXN / 48RXN / 96RXN)	Diffinity RapidTip®2 with polymerase removal, for Rainin LTS®	50 µL	1 min	Up to 95% recovery
Gel Extraction				
11696505001	Agarose Gel DNA Extraction Kit	100 mg gel slice	60 min	Varies depending on size range of recovered DNA
NA1111 (70 preps)	GenElute™ Gel Extraction Kit	Up to 3.5 g gel slice	N/A	Up to 80% recovery
56500 (70 preps)	GenElute™ Agarose Spin Columns	<200 mg gel slice	10 min	Up to 80% recovery
56501 (70 preps)	GenElute™ Minus EtBr Spin Columns	<200 mg gel slice	10 min	Up to 70% recovery

Our agarose is suitable for a wide range of nucleic acid and protein gel applications, including resolution of small DNA fragments of less than 1000 bp and PCR products. It prevents smearing or high fluorescence backgrounds and is of average gel strength and standard melting and gelling ranges. Low EEO means shorter electrophoretic runs.

Molecular biology grade specifications

DNAse:	none detected
RNAase:	none detected
Protease:	none detected
Sulfate (SO4):	≤0.10% max
EEO (-mr):	≤0.12
Endonuclease/ligase inhibitory factors:	none detected
Gelling range (1.5%):	34-38 °C
Gel strength (1.5%):	2000 g/cm^2 min
Melting point (1.5%):	85-89 °C

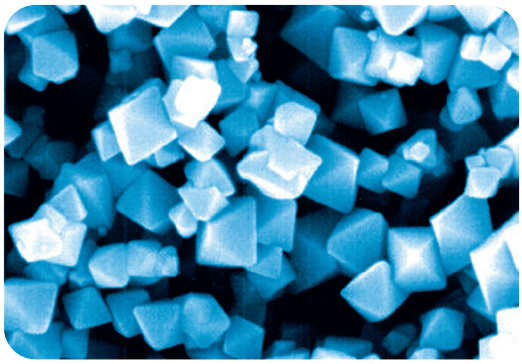
More information can be found at our agarose learning center **SigmaAldrich.com/agarose**

Rapid and Efficient Purification of DNA or RNA with MagPrep® Magnetic Beads

MagPrep® Silica Magnetic Particles have been designed to meet the most important requirements for solid supports used to purify nucleic acids and for magnetic separations:

- Special surface chemistry, unlike common silica supports, allows very high affinity binding to both RNA and DNA
- High magnetite content allows for fast and efficient separation in magnetic fields, making the particles especially suited for automation protocols
- Small particle sizes coupled with large surface areas are essential for the successful extraction of low numbers of target molecules from large sample volumes.

Magnetic Particles not only bind nucleic acids but also bacteria, spores and eukaryotic cells. Under certain conditions, they also bind leukocytes from whole blood as well as prokaryotic cells from water or liquid growth media. Consequently, these particles can be used to concentrate organisms from large volumes of liquid samples.



Electron micrograph image showing the shape of MagPrep® Silica Magnetic Particles.

Physical properties of MagPrep® Silica Magnetic Particles:

- Average diameter: 50-150 nm
- Ferrite: >95%
- Surface area: 16-22 m^2/mg (non-porous)
- Binding capacity: >10 µg DNA or RNA per mg
- Buffer: suspended in 50 mM MES buffer pH 5.5 + Proclin™ as preservative

Three variations of MagPrep® Silica Magnetic Particles are available for nucleic acid purification so that you can always select the best option for every protocol, downstream application and sample type:

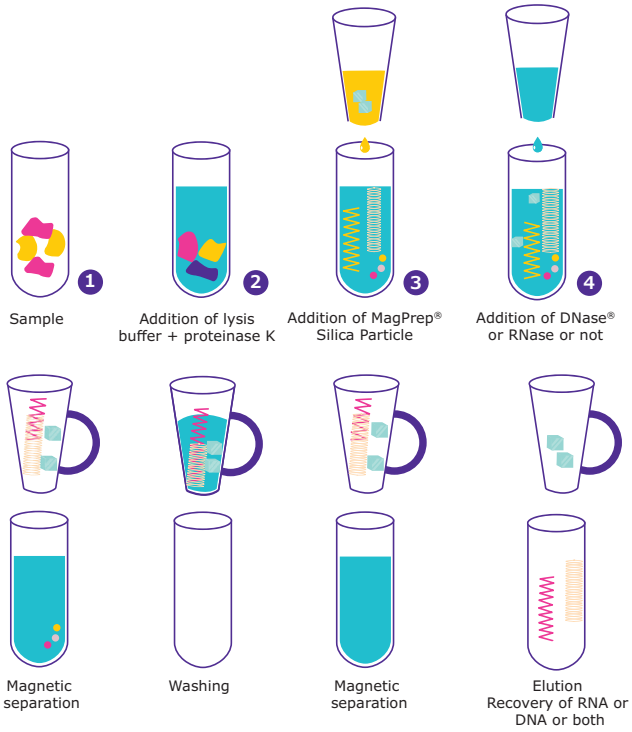
- HS-type primarily binds to DNA
- LS-type binds strongly to RNA in addition to DNA
- MS-type represents an intermediate of LS and HS.

Selectivity depends on binding and washing conditions as well as on the sample matrix.

Product	Pack Size (mL)	Conc. (mg/mL)	Cat. No.
MagPrep® Silica LS	1, 50, 500	50	1.01193
MagPrep® Silica MS	1, 50, 500	50	1.01644
MagPrep® Silica HS	1, 50	50	1.01899

See all Millicell® plates:
SigmaAldrich.com/catalog

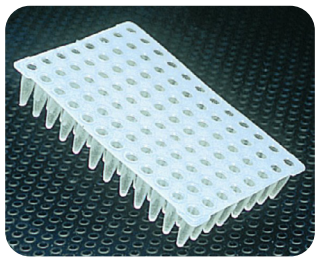
General schematic of MagPrep® Bead use.



For more information, including application information, please visit

MerckMillipore.com/nucleic-acid-technology

Quality Ancillary Reagents



Accelerate assay commercialization with the simplicity and convenience of one-stop shopping. To reduce risk of contamination and faulty PCR results, we offer high quality ancillary reagents. Find all the products you need to carry out successful PCR experiments in this one convenient location. All products are quality and availability assured.

Whether you are doing routine, long & accurate, or RT-PCR the products to complete your experiment are below. This bundle of PCR products includes:

- Acids & Bases
- Agarose
- Buffers
- Detergents
- dNTPs
- General Reagents
- PCR Enzymes

Visit **SigmaAldrich.com/PCR-reagents** for more information on our portfolio.

Reduce any contamination risk with our comprehensive selection of PCR accessories and PCR lab equipment. Discover more here

SigmaAldrich.com/PCR-equipment

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