

EchoCLEAN DNA & RNA CleanUp Kits

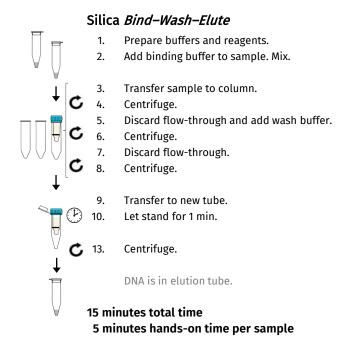
For single-step spin column DNA or RNA CleanUp in just 3 minutes

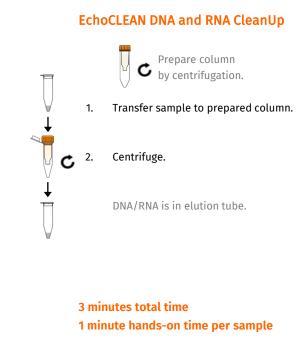
Genomic research and DNA analyses such as PCR and NGS require high-quality nucleic acids as starting material. BioEcho strives to improve traditional sample preparation workflows by providing faster and more convenient procedures that lead to superior work results. Our one-step technology allows to clean DNA or RNA solutions from unwanted contaminants or to simply change the formulation or buffer conditions of your nucleic acid solution. The result is unmet DNA/RNA purity within a fraction of the time of other methods, with minimal hands-on interaction and in an eco-friendly manner.

EchoCLEAN CleanUp kits provide

- A complete range of CleanUp products for quick removal of any impurity
- Optimal preparation of DNA and RNA for downstream performance in NGS, PCR, other enzymatic reactions
- Maximized purity by removal of contaminants over a wide range of reagents:
 Salts, metal ions, chaotrophs, other small molecules (oligo)nucleotides organic solvents and dyes
- Much faster preparation 1/5 the hands-on time, fewer steps
- 70% less plastic waste, no toxic chemicals, plastic-free packaging the sustainable way!

5x Faster preparation time & fewer steps

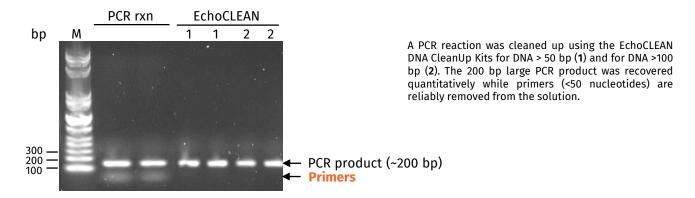




The revolutionary new EchoCLEAN workflow increases the convenience of genomic sample clean-up significantly. Clean your DNA or RNA with maximal recovery to unmet purity in a fraction of the time compared to traditional Silica *bind-wash-elute* procedures! Reliably remove all unwanted impurities which may disturb your downstream applications! The EchoCLEAN principle is independent of a binding event to a membrane and, therefore, of a binding capacity: the DNA or RNA remains untouched and all of it flows through the column in a single step.

convenience · performance · sustainability

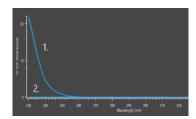
Reliable PCR CleanUp



- Complete primer removal
- Removal of salts and mononucleotides (dNTP's) desalting into 10 mM Tris, pH 8.2

EchoCLEAN DNA CleanUp kits are ideally suited to clean up PCR reactions. Primers are reliably removed while the PCR product is recovered quantitatively. Simultaneously, mononucleotides, salts and other low-molecular weight products are removed. The resulting clean DNA fragment is ready to be used in further applications such as DNA sequencing.

Removal of Guanidine salts from Silica-based extraction



Removal of GTC is demonstrated by EchoCLEAN treatment (2) of a GTC solution (1). The EchoCLEAN DNA CleanUp Kit (for DNA >50 bp) was used.

- Complete removal of GTC/GITC from DNA preparations to baseline resolution
- Excellent recovery of DNA (≥ 90 %)
- Result: optimal 260/230 ratio (> 2.0)

The EchoCLEAN process efficiently removes any LMW substances as demonstrated by the analysis of 260/230 OD ratios. Substances that absorb at 230 nm include GTC/GITC and peptides contribute to poor ratios < 2.0. EchoCLEAN also cleans DNA solutions from Guanidine-hydrochloride (GuHCL) which does not absorb at 230 nm.

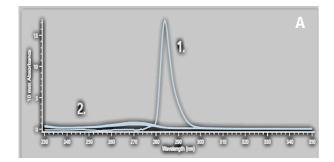
EchoCLEAN - Proven removal of typical impurities evaluated

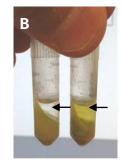
DNA	Chaotrophs & Salts	Dyes	Organic Solvents	Other
DNA fragments (var. sizes)	Gu-HCl¹	Indigo	Phenol	Peptides
Primers (var. sizes)	GTC (GITC) ²	Gel loading dyes	Chloroform	Precipitates
dNTP's	Urea		Trizol	Humic acids ³
NTP's	NaCl, KCl, metal ions etc.		Ethanol	
	Ammonium Sulfate			

¹ Guanidine-Hydrochloride; ² Guanidine Thiocyanate (=Guanidine Isothiocyanate); ³ Please inquire for a EchoCLEAN kit availability

Removal of Organic Solvents

DNA prepared by traditional methods frequently contains resudual phenol and/or chloroform. EchoCLEAN completely eliminates such impurities.





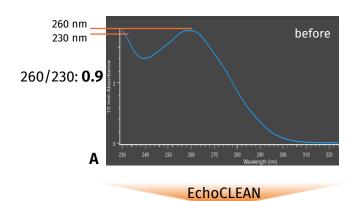
A, The aqueous phase from a mock phenol/chloroform-based extraction of DNA was analysed spectrophotometrically (1). After EchoCLEAN clean-up, the phenol peak has been eliminated (2; in duplicate). Instead of a single absorption at 285 nm, phenol can also form several peaks at various wavelengths.

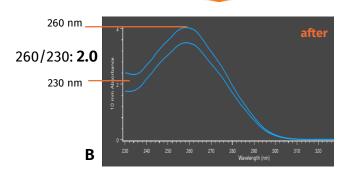
B represents a typical aqueous phase of a phenol/chlorofom-based DNA extraction (see ←).

- Complete removal of phenol from DNA solutions
- Complete removal of residual ethanol or traces of any other organic solvent

EchoCLEAN products are ideally suited for a reliable clean-up when a universal preparation for NGS library prep is desired or required. Any enzymatic downstream reaction can then be performed without any worries.

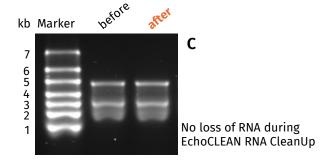
RNA CleanUp





- Complete removal of phenol from RNA
- Also eliminates salts residual ethanol or traces of any other organic solvent
- ➤ Maximized purity $(OD_{260/230} \ge 2.0)$

The EchoCLEAN RNA CleanUp Kit is the product of choice whenever RNA is to be used in downstream applications that include enzymatic activities, especially upon phenol-based extraction! After EchoCLEAN CleanUp, enzymatic downstream reactions can then be performed without any inhibition.



Total RNA preparations by using Trizol (Supplier Q) have been spectrophotometrically analyzed before and after using EchoCLEAN RNA CleanUp Kit. The OD 260/230 nm ratio has been improved from 0.9 to the optimal range of ≥ 2.0 (——) while all RNA was recovered (C). The EchoCLEAN RNA CleanUp kit may not quantitatively recover small RNAs (e. g., miRNA, snRNA, tRNA)!

Ordering information

EchoCLEAN CleanUp Kits	Reactions	Product No.
EchoCLEAN DNA CleanUp Kit (for DNA > 50 bp) For single-step primer removal and desalting of DNA in just 3 minutes (recovers DNA > 50 bp)	10	020-002-030-010
	50	020-002-030-050
	250	020-002-030-250
choCLEAN Organic Solvent DNA CleanUp Kit For single-step clean-up of DNA from organic solvents in just 3 minutes; also suitable for desalting (recovers DNA > 50 bp)	10	020-002-040-010
	50	020-002-040-050
	250	020-002-040-250
choCLEAN RNA CleanUp Kit or single-step clean-up of RNA from organic solvents, salts and chaotrophs n just 3 minutes	10	020-002-050-010
	50	020-002-050-050
	250	020-002-050-250

BioEcho's growing portfolio of nucleic acid extraction and CleanUp kits further comprises the products listet below. For reagents and accessories and for availability of test kits for additional applications, please refer to www.bioecho.de.

EchoLUTION nucleic acid extraction kits	Reactions	Product No.
EchoLUTION Blood DNA Kit	10	010-001-010
For single-step purification of genomic DNA from up to 60 µl liquid blood (human or animal) and dried blood (e.g., FTA cards), yielding up to 2 µg of	50	010-001-050
highly pure DNA suitable for all molecular biology applications	250	010-001-250
EchoLUTION Tissue DNA Micro Kit	10	010-002-010
For single-step purification of genomic DNA from 0.1 to 10 mg of animal tissue, yielding up to 40 µg highly pure DNA suitable for all molecular biology applications	50	010-002-050
	250	010-002-250
EchoLUTION CellCulture DNA Kit For purification of genomic DNA from up to 2•10 ⁶ cultured cells (cell lines and primary cells), yielding up to 50 µg of highly pure DNA suitable for all	10	010-006-010
	50	010-006-050
molecular biology applications	250	010-006-250
ReDUCE DNA/RNA concentration		
ReDUCE DNA Concentrator (for quick, up to 20-fold volume reduction)	10	040-011-010
	50	040-011-050
ReDUCE RNA Concentrator (for quick, up to 20-fold volume reduction)	10	040-012-010
REDUCE MITA Concentiator (for quier, up to 20 fota votame reduction)	50	040-012-050



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