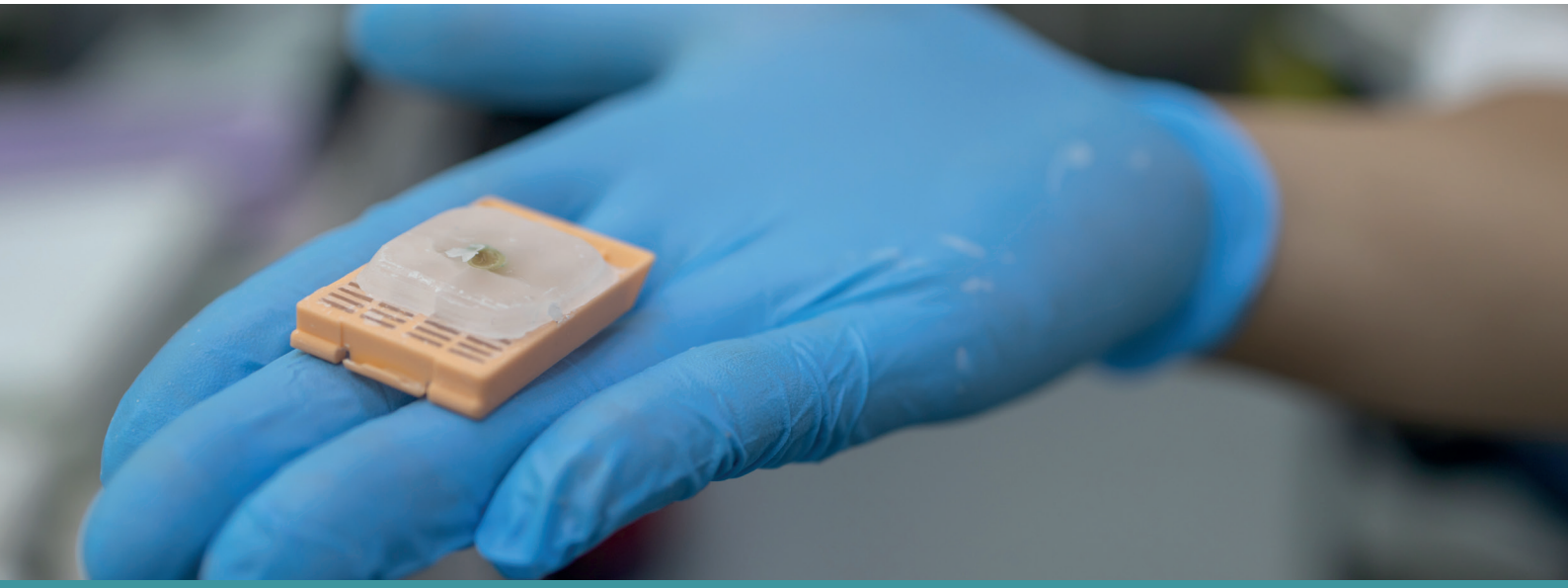
BIO ECHO Life Sciences

EchoLUTION™

FFPE RNA Kit



Superior RNA from FFPE tissues enhancing RNA-seq

The Nucleic Acid Experts.

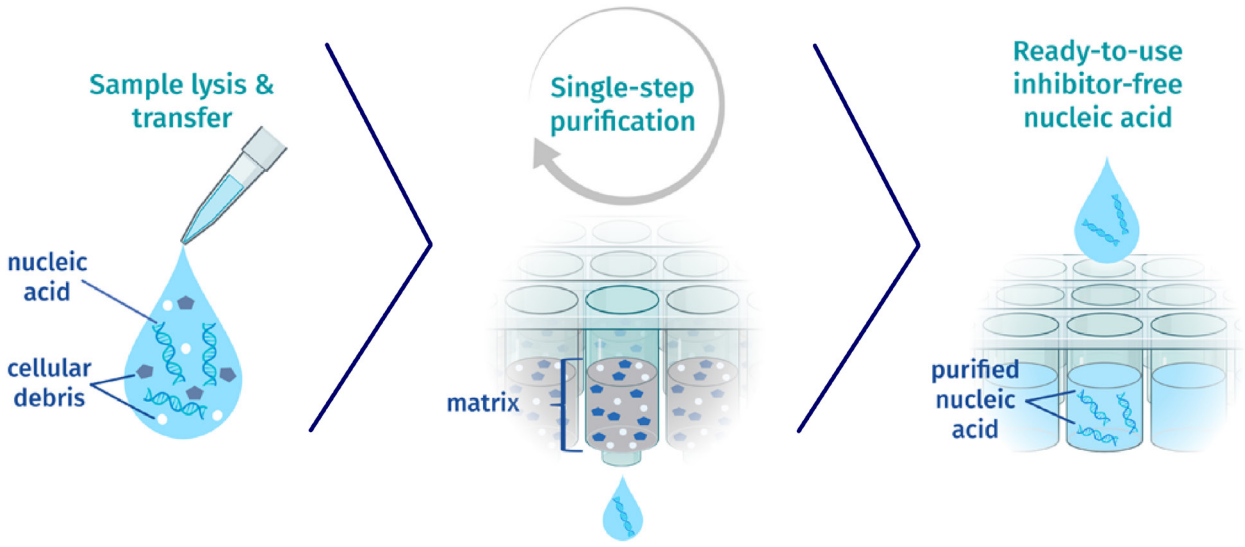
Superior RNA from FFPE tissues enhancing RNA-seq

Formalin-fixed paraffin-embedded (FFPE) tissues samples serve as a valuable data source for the study of diseases. Due to the fixation and preservation procedure FFPE samples are challenging to analyze in many molecular biological assays. Besides, workflows are tedious, time-consuming, and often involve hazardous reagents.

The EchoLUTION FFPE RNA Kit offers a simplified workflow for an efficient RNA extraction from any kind of FFPE tissues. The isolated RNA is ready-to-use in standard downstream applications such as RT-qPCR. Further, it exhibits superior quality for RNA-seq with more unique mappers and gene count detected.

Our EchoLUTION technology allows extraction of RNA in a single step after tissue decrosslinking and paraffin removal without the need of lenghty incubations. Impurities are held back by the purification matrix while the RNA flows through untouched.

The EchoLUTION™ Technology

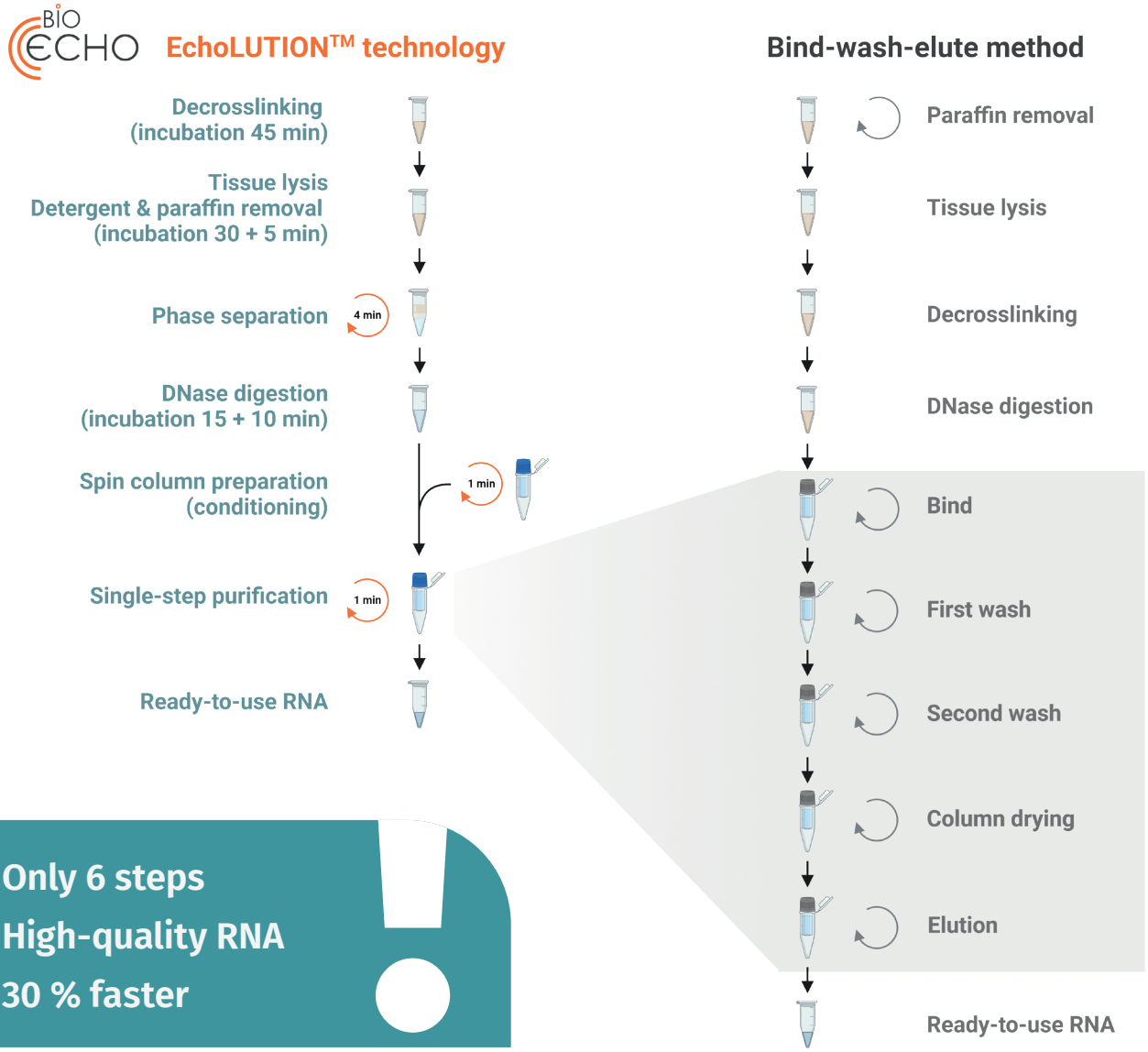


The EchoLUTION™ FFPE RNA Kit provides:

Convenience	Simplified workflow with fewer hands-on steps than conventional kits
Speed	Optimized tissue lysis combined with single-step purification leads to a 30 % faster protocol than with established kits
High sensitivity	Highly pure RNA free of contaminants and inhibitors
Reliable results	High purity and competitive RNA integrity perfectly suited for downstream applications such as RT-qPCR, and RNA-seq
Sustainability	Up to 35 % less plastic consumption compared to conventional methods; no use of hazardous xylene or other organic solvents

The workflow: faster and fewer steps

The EchoLUTION FFPE RNA Kit is intended for easy, rapid, and efficient RNA extraction in one hour less than other kits on the market (for 12 samples). Obtain highly pure RNA to be used in downstream applications without further processing.



1. FFPE decrosslinking

The crosslinks between nucleic acids and proteins introduced during formaldehyde fixation and paraffin embedding (FFPE) are reversed in a heating step.

2. FFPE tissue lysis and removal of detergent and paraffin

The tissue is further lysed by addition of protease. The removal of paraffin and other detergents is performed in a phase separation during centrifugation.

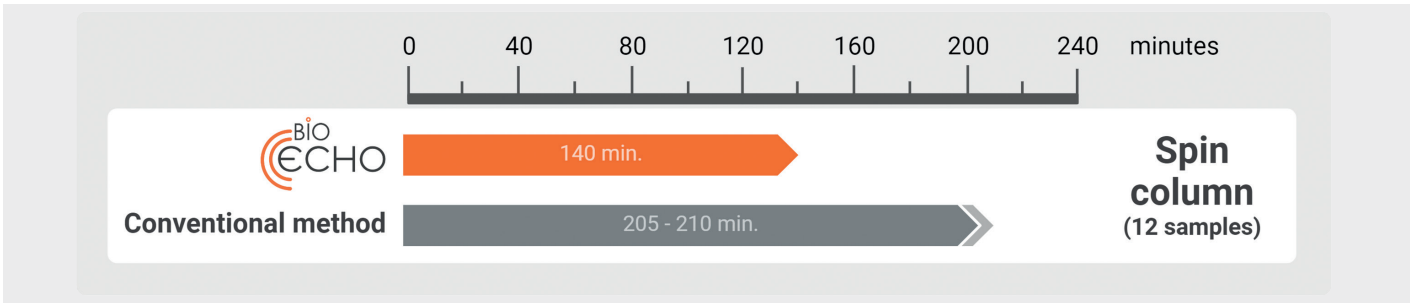
3. Single-step purification

After the DNase digestion step, the lower phase is transferred onto the spin column, the sample is purified with a one-minute centrifugation step. The RNA passes through the purification matrix without further interaction while impurities are held back and thereby removed.

4. Ready-to-use RNA

The highly pure total RNA is ready-to-use for downstream applications.

Save more than one hour with the EchoLUTION™ FFPE RNA Kit



Get competitive yield and inhibitor-free RNA with EchoLUTION™

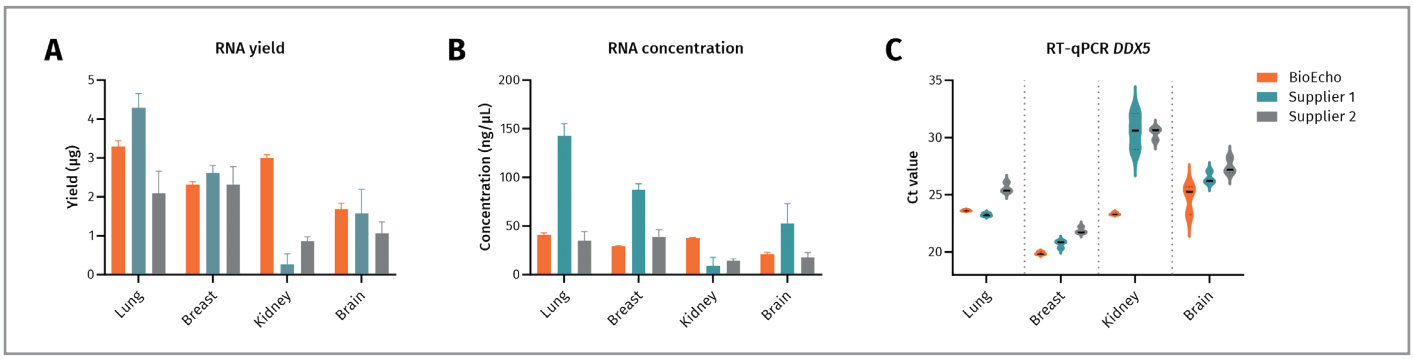


Figure 1. Competitive RNA yield and high purity with EchoLUTION FFPE RNA Kit. A. Data show that RNA yield obtained with the EchoLUTION FFPE RNA Kit is comparable to or higher than with other suppliers' kits. The RNA obtained with supplier 1 from kidney exhibits a very low concentration. **B.** RNA concentration with EchoLUTION is comparable to supplier 2 for all samples, but lower than supplier 1 (except for kidney), due to the larger eluate volume. **A & B.** Data analyzed with Qubit™. Error bars represent the standard deviation. **C.** RT-qPCR of the *DDX5* gene expression in the analyzed tissues displays lower Ct values with EchoLUTION than with other suppliers, even with lower concentration. Data demonstrate a higher RNA purity and no presence of inhibitors with the EchoLUTION FFPE RNA Kit. Line represents the mean of Ct values. Samples were derived from human lung, breast, kidney, and brain FFPE tissues. *N* = 3 biological replicates.

Comparable or superior RNA fragments size with EchoLUTION™

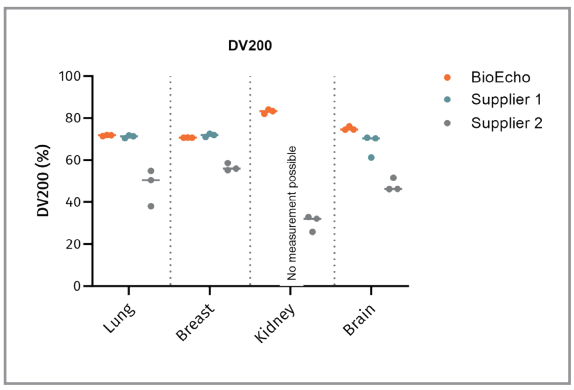


Figure 2. RNA fragment sizes obtained with EchoLUTION are comparable or better than other suppliers. DV200 measurements (TapeStation®) indicates that the RNA extracted with EchoLUTION has the same or higher percentage of fragments above 200 nt than RNA obtained with other suppliers. Samples were derived from human lung, breast, kidney, and brain FFPE tissues. RNA extracted with supplier 1 kit was not measurable in kidney samples. *N* = 3 biological replicates.

Go green with EchoLUTION™: less plastic & liquid waste

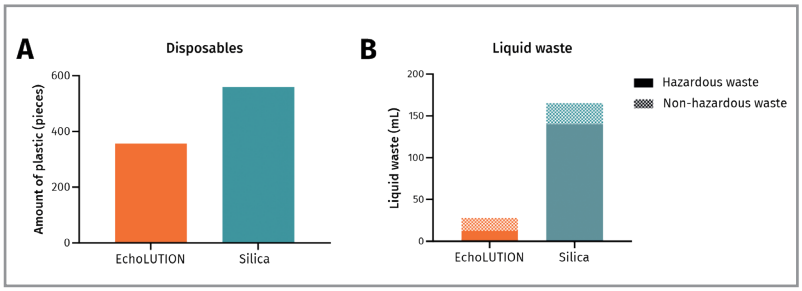


Figure 3. The amount of plastic and total liquid waste collected during the RNA extraction procedure is drastically reduced with EchoLUTION. **A.** The graph depicts the total amount of plastic pieces used with EchoLUTION FFPE RNA Kit and a silica-based method. **B.** The total liquid waste obtained with EchoLUTION is more than 80 % less than with the silica kit. Further, with EchoLUTION hazardous reagents are reduced to a minimum thus reducing the environmental impact. *N* = 12 samples.

RNA-seq: larger gene count with EchoLUTION™

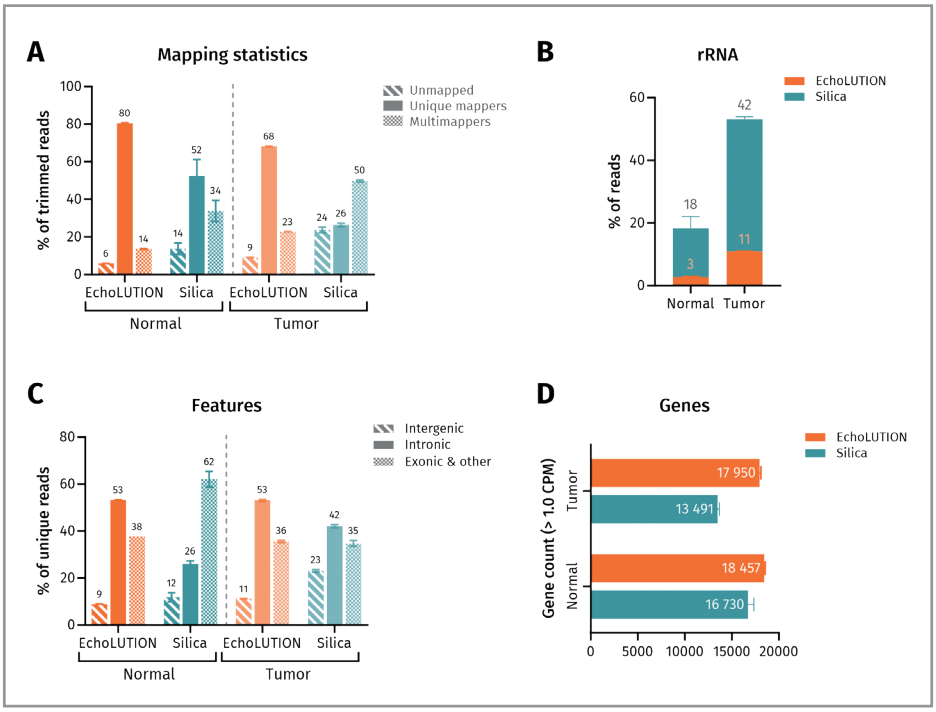


Figure 4. Transcriptome analysis of RNA isolated from tumor and normal brain FFPE tissues. **A.** The percentage of trimmed reads is represented from a total of 2 M reads. The number of unique mappers is higher for samples extracted with EchoLUTION than with the silica method. **B.** EchoLUTION-extracted FFPE RNA results in significantly less rRNA reads in RiboCop® rRNA depleted CORALL® V2 NGS libraries than seen with silica-extracted FFPE RNA. **C.** The fraction of intronic reads is larger in EchoLUTION samples than with silica. **D.** The number of detected genes was higher with EchoLUTION than with the silica-based method. *N* = 2 biological replicates per sample. Error bars represent standard deviation.

Specifications at a glance

Sample type: Formalin-fixed paraffin-embedded (FFPE) tissue

Processing: Manual through centrifugation/(semi)automated with liquid handler/robot

Sample input: 100 – 800 mm² surface area or 1 – 15 mg FFPE tissue

Elution volume: : ~80 µL

Ordering information

Product	Quantity	Product no.
EchoLUTION FFPE RNA Kit (10)	10 rxn	011-005-010
EchoLUTION FFPE RNA Kit (50)	50 rxn	011-005-050
EchoLUTION FFPE RNA Kit (250)	250 rxn	011-005-250
BioEcho Cap Puncher*	1 piece	050-001-001

*Optional, for convenient handling of spin columns

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