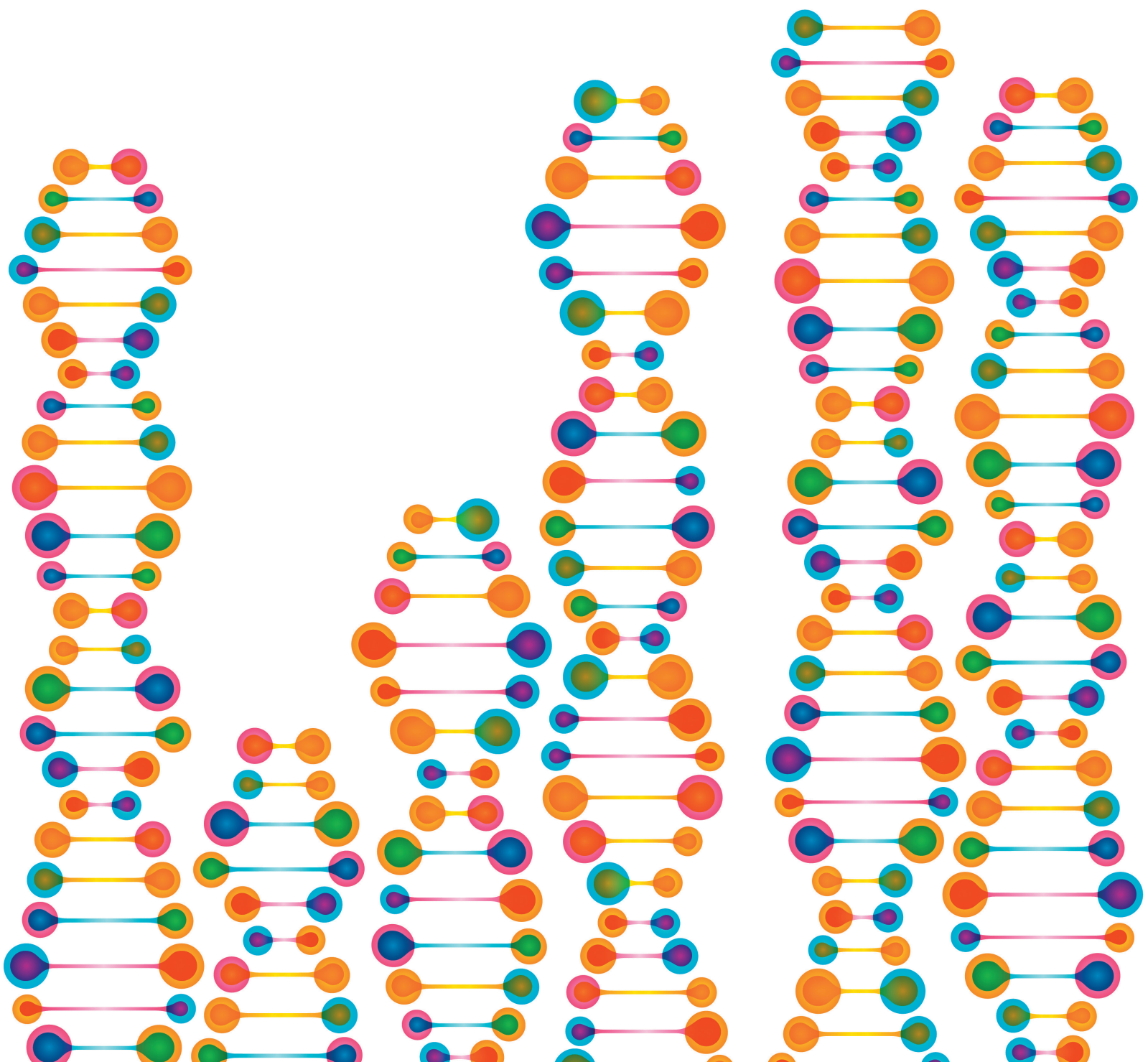




products for

SONICATION

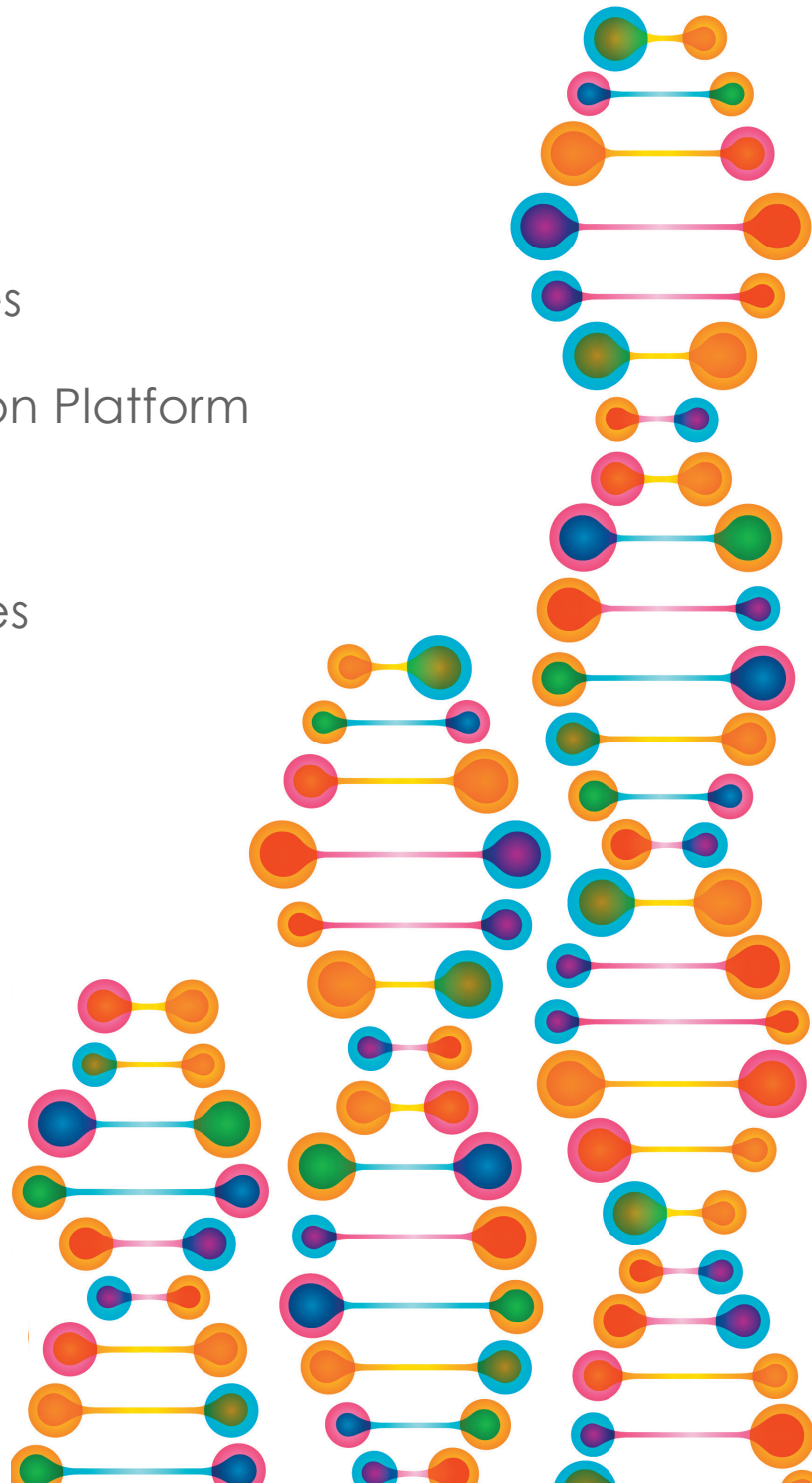
Probe Sonicators / Multi-sample Processors /
Cooled Sonication Platform / Accessories



Active Motif's EpiShear™ sonication products are ideal for shearing chromatin and DNA for use in chromatin immunoprecipitation (ChIP), DNA methylation studies and Next-Generation sequencing. They can also be used for cell disruption, RNA shearing and other homogenization applications. Active Motif's ultrasonic processors are designed for ease of use and include features like fully programmable digital generators that give you the control needed to get the most reproducible results possible.

AVAILABLE PRODUCTS:

- EpiShear™ Probe Sonicator
- Probe Sonicator Accessories
- EpiShear™ Cooled Sonication Platform
- Q800R1 Sonicator®
- Polystyrene Sonication Tubes
- ChIP Assays



EPISHEAR™ SONICATORS

REPRODUCIBLE SONICATION FOR MORE CONSISTENT RESULTS

Active Motif's EpiShear™ sonication systems are designed for ease of use and ultimate control to ensure the highest degree of sample-to-sample reproducibility. Keypad programming and digital displays clearly display all parameters and options, making it easy to control sonicator functions, such as amplitude, pulse cycles and processing times, with the simple touch of a button. Once you determine optimal settings, the fully programmable system enables you to save these parameters to ensure consistency with subsequent sonications.

FEATURES:

KEYPAD PROGRAMMING & DIGITAL DISPLAYS

Intuitive inputs make optimization simpler and enable real-time monitoring

AMPLITUDE / INTENSITY CONTROL

Microprocessor-controlled units can be set to exact amplitudes ranging from 20% to 100%

PROGRAMMABLE OPERATION

Hands-free operation; manual mode also available

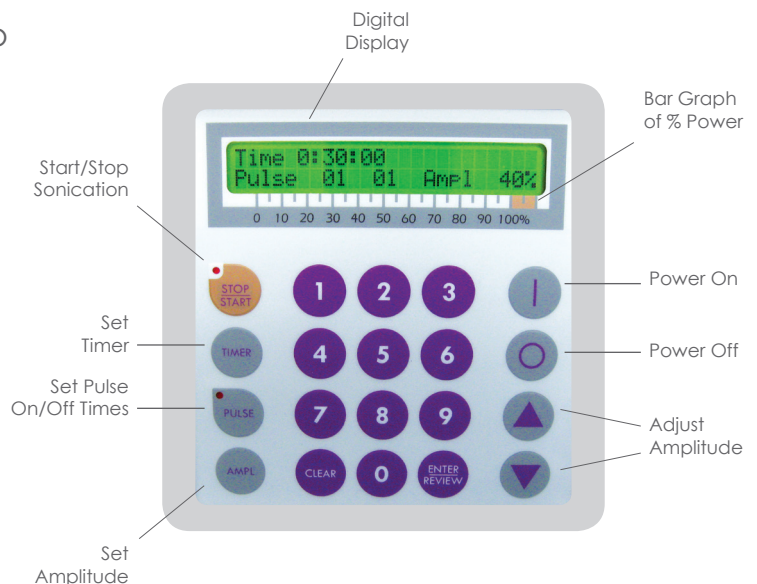
PULSE MODE

Prevent heat buildup in temperature sensitive samples

COMPACT DESIGN

Take up less space than other units for benchtop use

CONTROL ANY SONICATOR FUNCTION WITH A SIMPLE TOUCH



For more information and a complete list of available sonicator products, visit us at www.activemotif.com/sonicator.

DIRECT vs. INDIRECT SONICATION

DIRECT SONICATION

Energy transmission by inserting a probe directly into a sample, or direct sonication, is the most common method of sample processing. This method delivers high intensity sonication to a concentrated area for fast and efficient processing.

Our Probe Sonicator utilizes direct sonication, as the probe tip is inserted directly into the sample. This results in a high-intensity energy transfer so the sample is processed relatively quickly. The diameter of the probe tip dictates the amount of sample that can be effectively processed. Therefore, a range of sample sizes can be sheared simply by changing probes.



INDIRECT SONICATION

With our Q800R1 processor, ultrasonic energy is transferred from a horn and distributed through water and into sample tubes. Indirect sonication offers the advantage of multi-sample processing making it ideally suited for high-throughput applications.

In addition to increased throughput and reduced hands-on time, indirect sonication is also more effective for very small samples because foaming and sample loss are eliminated. Because the samples remain in sealed tubes, there is no chance of cross-contamination. Moreover, the absence of aerosol formation makes indirect sonication a better method for working with pathogenic samples (viruses, mycobacteria, etc.) or with samples that must remain sterile.



EPISHEAR™ PROBE SONICATOR

EXPERIENCE THE VERSATILITY OF PROBE SONICATION

The EpiShear Probe Sonicator is ideal for shearing chromatin, DNA and RNA, or for cell disruption and homogenization. With a variety of microtip probe sizes available, you can process samples ranging from 200 µl to 50 ml. In addition, the EpiShear Probe Sonicator offers adjustable amplitude, adjustable pulse and a programmable timer to allow modification of sonication conditions for determining the optimal settings for your sample and application.

Direct Sonication provided by a probe is the most common method used for sample processing since it delivers high intensity sonication and enables the focus of energy transmission to a small, concentrated area.

Each unit is supplied complete with:

- an ultrasonic electric generator
- a piezoelectric converter
- a 1/8" microtip probe
- a wrench set for changing probes
- power & converter cables

The unit is backed by a two-year warranty.



EpiShear™ Probe Sonicator

TECHNICAL SPECIFICATIONS

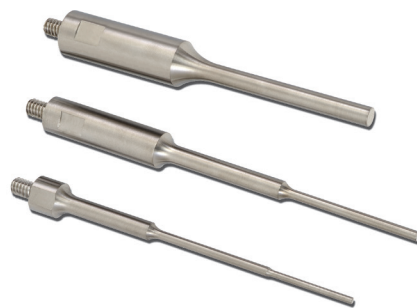
Input Voltage:	Cat. No. 53051: 100V - 120V @ 50/60 Hz Cat. No. 53052: 220V - 240V @ 50/60 Hz	Sample size:	200 µl - 50 ml (probe dependent) (500 µl - 15 ml with included 1/8" probe)
Adjustable Amplitude:	20% - 100%	Adjustable Pulse:	1 second to 59 seconds
Programmable Timer:	1 second to 10 hours	Power Rating:	120 watts
Generator Dimensions:	8.0" W x 13.75" L x 5.75" H 7.0 lbs. (203 mm x 349 mm x 146 mm)(2.2 Kg)	Frequency:	20 kHz

For more information, please visit us at www.activemotif.com/probe.

PROBE SONICATOR ACCESSORIES

STANDARD PROBES TO ADAPT TO ANY SAMPLE SIZE

The EpiShear™ Probe Sonicator is adaptable to a wide range of sample sizes. The supplied 1/8" microtip probe enables processing of samples from 500 µl to 15 ml. Smaller and larger size probes are also available to provide flexibility in range from 200 µl to 50 ml. Smaller tip diameters deliver high intensity energy to a small, concentrated area. Larger tip diameters can process larger volumes, but offer lower intensity.



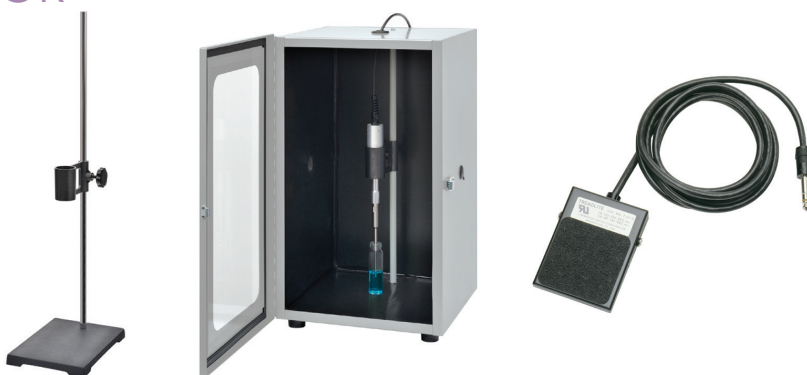
SPECIFICATIONS FOR MICROTIP PROBES:

Cat. No.	Tip Diameter	Sample Size	Amplitude
53056	5/64" (2 mm)	200 µl - 5 ml	200 µm (very high)
53053	1/8" (3.2 mm)	500 µl - 15 ml	180 µm (high)
53057	1/4" (6.4 mm)	10 ml - 50 ml	120 µm (medium)

5/64", 1/8" and 1/4" microtip probes for the EpiShear™ Probe Sonicator

ADDITIONAL ACCESSORY PRODUCTS FOR THE EPISHEAR™ PROBE SONICATOR

A variety of other accessory products are also available for use with the EpiShear Probe Sonicator, including the EpiShear™ Cooled Sonication Platform (opposite page), a converter stand for hands-free use, a sound enclosure that reduces sonication noise volume by ~35 db, and a footswitch for convenient delivery of short pulses when using the unit in manual mode.



EpiShear™ probe sonicator accessory products

Shown from left to right are the converter stand for hands-free use, a sound enclosure for noise reduction and a footswitch to use for generating pulses when using the unit in manual mode.

For more complete information, please visit us at www.activemotif.com/epishear.

EPISHEAR™ COOLED SONICATION PLATFORM

ENHANCE THE REPRODUCIBILITY OF ANY PROBE SONICATOR

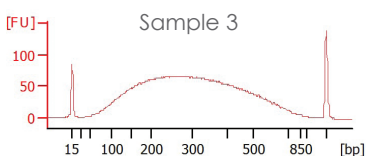
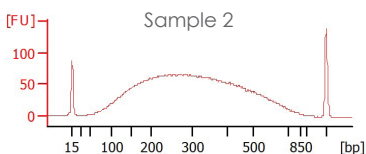
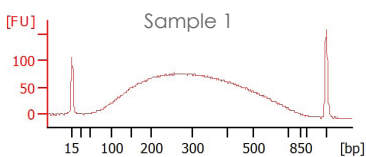
The most important factor of sonication is reproducibility. The EpiShear Cooled Sonication Platform enhances sample-to-sample reproducibility by enabling you to precisely position the probe at the same depth in the sample every sonication.

Once you determine the optimal settings for sonication, recreate them every time with the EpiShear Cooled Sonication Platform. The durable stainless steel and aluminum platform includes a hand crank, a height counter and a vertical alignment tool. The platform is supplied mounted inside a sound enclosure.

Also included is a Tube Cooler (available for microfuge, 15 ml and 50 ml tubes) that ensures that the sample stays cold throughout the entire sonication, eliminating the need to move samples to an ice bucket between pulses. With programmable sonicators like our EpiShear™ Probe Sonicator, you can simply set your parameters, press Start, then walk away.



EpiShear™ Cooled Sonication Platform



Sample	Average	Range (bp)
1	325 bp	55-1088
2	322 bp	46-988
3	320 bp	54-1012



Bioanalyzer data confirms reproducibility

Three different samples of sheared chromatin were prepared from HeLa cells using the EpiShear Probe Sonicator (1/8" probe) and the ChIP-IT® Express Kit. Each sample was sonicated using the identical settings on the Cooled Sonication Platform. Analysis performed using an Agilent 2100 Bioanalyzer shows that all 3 samples were sheared to near identical average sizes and comparable size ranges. (The 15 bp and 1500 bp peaks in the graphs above are DNA markers that correspond to the green and purple bars present in the gels.)

To learn more and for ordering information, visit www.activemotif.com/platform.

Q800R1 SONICATOR®

ULTRASONIC HORN FOR MULTI-SAMPLE PROCESSING

The Q800R1 Sonicator uses a high-intensity ultrasonic horn for batch processing. The unit can shear up to eight samples of chromatin or DNA simultaneously ranging in volume from 50 µl - 1.2 ml each. The Q800R1 includes a fully programmable, digitally controlled generator to make it easy to monitor and optimize shearing conditions and to reproduce them in subsequent sonications for the most consistent and reliable results.

The Q800R1 ultrasonic horn is mounted inside an acrylic water bath that includes a tube rotator (inset) to ensure all samples are processed equally. The horn/water bath is housed in a compact sound enclosure to reduce sonication noise (center). The water bath can be plumbed via quick-connect hoses to a thermoelectric chiller (left), which keeps the samples at 3-4°C during sonication. Each unit features:

- a powerful 750-watt generator
- a compact sound enclosure
- 8-sample tube holder for 1.5 ml polystyrene tubes
- a chiller for continuous cooling of the samples



EpiShear™ Q800R1 Sonicator

The ultrasonic processor is backed by a one-year warranty.

TECHNICAL SPECIFICATIONS

Input Voltage:	Cat. No. 53062: 100V - 120V @ 50/60 Hz Cat. No. 53063: 220V - 240V @ 50/60 Hz	Sample size:	1-8 samples (50 µl - 1.2 ml per sample) in 1.5 ml vials	
Adjustable Amplitude:	20% - 100%	Frequency:	20 kHz	
Programmable Timer:	1 second to 10 hours	Adjustable Pulse:	1 second to 59 seconds	
Ultrasonic Horn/Sound Enclosure Dimensions:	13.0" D x 20.25" H x 11.5" W 30.0 lbs. (330 mm x 514 mm x 292 mm)(13.6 Kg)	Power Rating:	750 watts	
		Generator Dimensions:	15.0" D x 9.0" H x 8.0" W (381 mm x 229 mm x 203 mm)	16.0 lbs. (7.3 Kg)

For more information on the Q800R1 Sonicator and Thermoelectric Chiller, visit www.activemotif.com/q800r.

POLYSTYRENE SONICATION TUBES

ENHANCED ENERGY TRANSFER FOR MORE EFFICIENT SHEARING

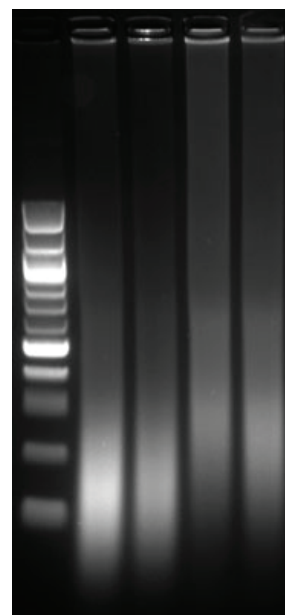
Polystyrene transfers sonic wave energy much more efficiently than polypropylene. Use of polypropylene tubes in indirect sonication has been shown to reduce the extent to which the chromatin is sheared. Therefore, Active Motif highly recommends that its Polystyrene Sonication Tubes be used with its Q800R1 Sonicator®.

Because ultrasonic horn sonicators use an indirect shearing method that requires the ultrasonic wave energy to distribute through the water bath and pass through the wall of the tube, the composition of the tube is a critical determinant of the efficiency of the energy transfer.

The use of polystyrene tubes significantly improves energy transfer and overall shearing efficiency over polypropylene options, with far less high-molecular weight material remaining after sonication. Therefore, for optimal results from a multi-sample processor, Active Motif highly recommends the use of its Polystyrene Sonication Tubes for indirect sonication including with Active Motif's Q800R1 Sonicator.



Polystyrene Sonication Tubes



Improved shearing results using polystyrene tubes versus polypropylene tubes

Sheared chromatin was prepared from 20 µg per sample of 3T3 cells using the Q800R1 Sonicator at 50% amplitude for 10 minutes. The samples were sheared in either Active Motif's Polystyrene Sonication Tubes (Lanes 2-3) or standard polypropylene tubes (Lanes 4-5). Gel analysis shows that, although all samples were processed simultaneously, the chromatin prepared in the polystyrene tubes was sheared more efficiently and display much lower average lengths. A large percentage of the samples processed in polypropylene tubes remains at the top of the gel, as the shearing efficiency in polypropylene was relatively poor.

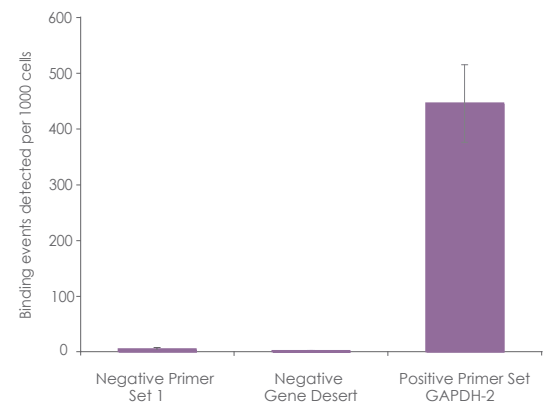
To learn more and for ordering information, visit www.activemotif.com/pstubes.

ChIP ASSAYS

NEED ChIP RESULTS IN A HURRY?

ChIP-IT[®] Express, the most published ChIP kit on the market, was the first ChIP kit to use magnetic beads. This reduced background and streamlined the ChIP protocol by eliminating many steps required in conventional agarose bead-based protocols.

With ChIP-IT Express, washing and elution steps are faster and more efficient because centrifugation is replaced by magnetic pull-down. The result is higher sensitivity, a reduction in the input sample amount to 100,000 cells per assay, and a condensed protocol that can be completed in 1 day. For more information on ChIP-IT Express, visit www.activemotif.com/chipit.

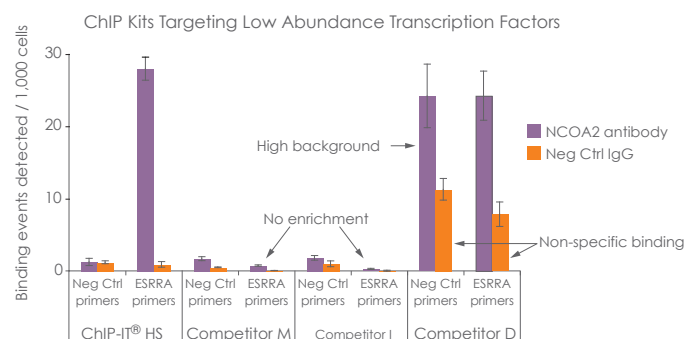


ChIP using Histone H3K4me3 antibody and ChIP-IT[®] Express of enriched MCF7 chromatin DNA show enrichment of H3K4me3 at GAPDH promoters but not at gene deserts, as expected.

TRANSCRIPTION FACTOR CHIP

ChIP analysis of transcription factors presents a challenge because of their low abundance and low / transient affinity to chromatin. ChIP-IT[®] High Sensitivity was specifically designed for performing ChIP on transcription factors or similar low-abundance targets.

ChIP-IT High Sensitivity is also ideal for performing ChIP using low-affinity antibodies or limited sample amounts. As little as 1,000 cell equivalents for high abundance proteins, or 50,000 for low abundance proteins, can be used for each ChIP reaction. DNA purification components are also included to streamline preparation of samples for downstream analysis. To learn more, visit www.activemotif.com/chipiths.



ChIP-IT[®] High Sensitivity is the only ChIP kit to successfully enrich for low abundance transcription factors with minimal background signal

ORDERING INFORMATION

EPISHEAR™ PROBE SONICATOR & ACCESSORIES

Product	Format	Cat. No.
EpiShear™ Probe Sonicator	110V	53051
	230V	53052
EpiShear™ 5/64" (2 mm) Sonicator Probe	1 probe	53056
EpiShear™ 1/8" (3.2 mm) Sonicator Probe	1 probe	53053
EpiShear™ 1/4" (6.4 mm) Sonicator Probe	1 probe	53057
Support Stand / Converter Clamp	1 unit	53054
Sound Enclosure	1 enclosure	53060
Footswitch	1 unit	53059
EpiShear™ Replacement Converter	1 unit	53058
EpiShear™ Cooled Sonication Platform, 1.5 ml	1 platform	53080
EpiShear™ Cooled Sonication Platform, 15 ml	1 platform	53081
EpiShear™ Cooled Sonication Platform, 50 ml	1 platform	53082
Benchtop 1.5 ml Tube Cooler	1 cooler	53076
Benchtop 15 ml Tube Cooler	1 cooler	53077
Benchtop 50 ml Tube Cooler	1 cooler	53078

Q800R1 SONICATOR® & ACCESSORIES

Product	Format	Cat. No.
Q800R1 Sonicator®	110V	53062
	230V	53063
Sonication Tubes / Caps, 1.5 ml polystyrene	200 tubes	53071
	1000 tubes	53072

CHIP PRODUCTS

Product	Format	Cat. No.
ChIP-IT® Express	25 rxns	53008
ChIP-IT® Express Shearing Kit (included in 53008)	10 rxns	53032
ChIP-IT® High Sensitivity	16 rxns	53040
Protein G Agarose Columns	30 rxns	53039
	5 rxns	53037
ChIP-IT® Protein G Magnetic Beads	40 rxns (1 ml)	53033
ChIP-IT® Protein G Magnetic Beads	200 rxns (5 ml)	53034



Enabling Epigenetics Research

NORTH AMERICA

Toll Free: 877 222 9543
Direct: 760 431 1263
Fax: 760 431 1351
sales@activemotif.com
tech_service@activemotif.com

Customer Service:
orders@activemotif.com

JAPAN

Direct: +81 (0)3 5225 3638
Fax: +81 (0)3 5261 8733
japantech@activemotif.com

EUROPE

GERMANY 0800/181 99 10
UNITED KINGDOM 0800/169 31 47
FRANCE 0800/90 99 79
OTHER COUNTRIES, DIRECT +32 (0)2 653 0001
Fax: +32 (0)2 653 0050
eurotech@activemotif.com

CHINA

Hotline: 400 018 8123
Direct: +86 21 2092 6090
techchina@activemotif.com

