

Quick Guide

DNA Shearing with R230 Focused-ultrasonicator

This Quick Guide provides DNA Shearing protocols for the Covaris 96 AFA-TUBE TPX Plate consumable using a Covaris R230 Focused-ultrasonicator instrument.

Values mentioned in this Quick Guide are nominal values. The tolerances are as follows:

- **Temperature:** +/- 3 °C
- **Sample Volume:**
 - 96 AFA-TUBE TPX Plate for \geq 300 bp: 50 μ L, \pm 2.5 μ L
 - 96 AFA-TUBE TPX Plate for \leq 300 bp: 20 μ L, \pm 2.5 μ L
- **Water Level:** +/- 0.5

Sample Guidelines

- **DNA Input:** 96 AFA-TUBE TPX Plate up to 5 μ g purified DNA
- **Buffers:** TE - Tris-EDTA, pH 8.0
- **DNA Quality:** Genomic DNA ($>$ 10 kb). For lower quality DNA, Covaris recommends setting up a time dose response experiment for determining appropriate treatment times.
- **WARNING:** DO NOT use the AFA-TUBE TPX Plates for long term sample storage. Samples should be transferred after processing.

Instrument Setup

- Refer to the instrument manual for complete setup.
- DNA Shearing vessels have specific racks and waveguides associated with them.

Instrument Settings

- Recommended settings are subject to change without notice.


NOTE: DNA fragment representation will vary with analytical systems. Covaris recommends a time course experiment to reach the desired fragment size distribution. Please contact ApplicationSupport@covaris.com regarding details on how to set up a method for time course experiment and for final optimized shearing.

Follow [this link](#) for updates to this document.

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AFA-TUBE TPX Plate with SonoLab 10.0.0 or Higher

	96 AFA-TUBE TPX Plate (PN 520291)	
Vessel		
Suggested Sample Volume	5 to 50 µl	
Rack	Rack R230 96 AFA-TUBE TPX Plate (PN 500668)	
Plate Definition	R230_520291 96 AFA-TUBE TPX Plate +0.5 offset	
Dithering	3 mm Y at 20 mm/s	
Temperature (°C)	10	
Analytical System	Agilent High Sensitivity NGS Fragment Analyzer Kit DNF-474	
Base Pair Mode (bp)	175	350
Repeat/Iterations (#)	13	5
Repeat Process Treatment Duration (sec)	10	10
Peak Incident Power (W)	280	280
Duty Factor (%)	25	25
Cycles per Burst (#)	50	50
Delay* Duration (sec)	10	10
Total Treatment Duration (sec)	130	50
Sample Volume (µL)	20	50

*The Delay step is required only for time course experiments and in run scenarios when only 1 column is being tested. For shearing in more than one column with optimized final setting, delay step is not required.

Please contact ApplicationSupport@covaris.com regarding details on how to set up a method for time course experiment and for final optimized shearing.

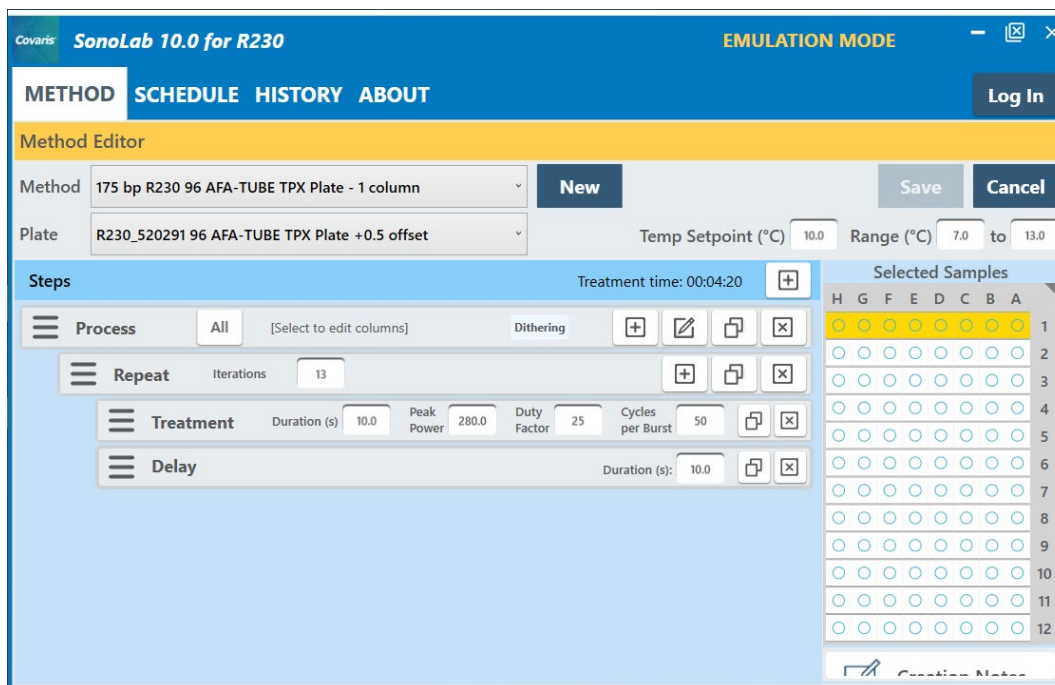
Additional Accessories

Product	Product Description	Part Number
R230 Rack 96 AFA-TUBE TPX Plate	This rack is compatible for use with the 96 AFA-TUBE TPX Plate on R230 Focused-ultrasonicators.	500668

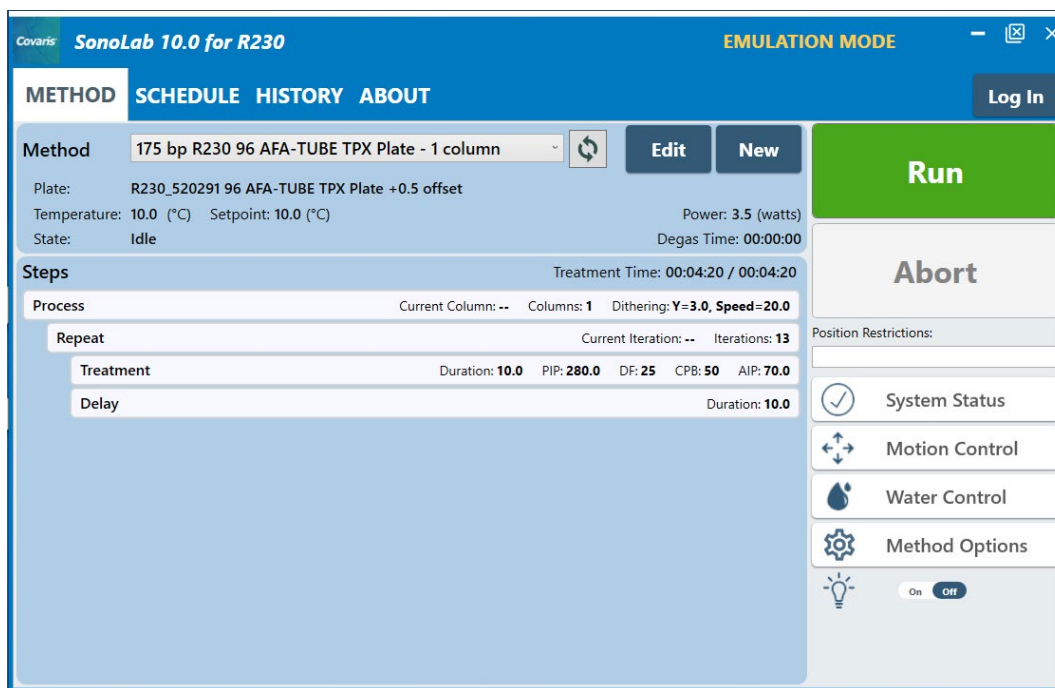
Appendix A: 175 bp Protocol on SonoLab 10.0 for R230 – 1 column

Following are some example screenshots for processing of 175 bp protocol with 1 column of the AFA-TUBE TPX Plate in the Method Editor and Method Screen.

Shearing Protocol in Method Editor



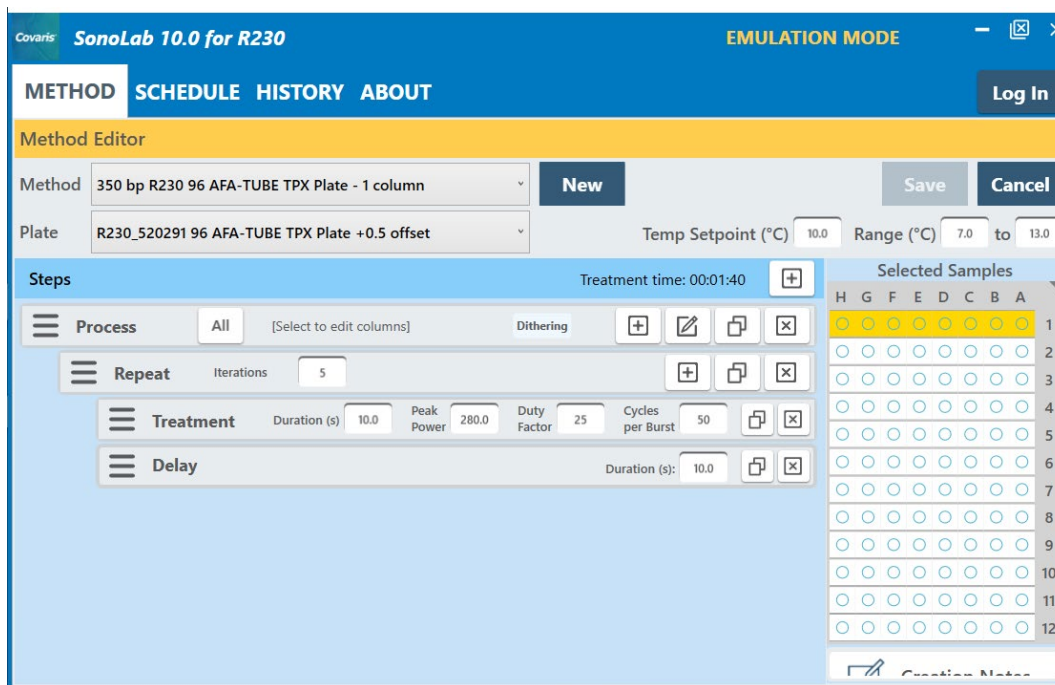
Shearing Protocol in Method Screen



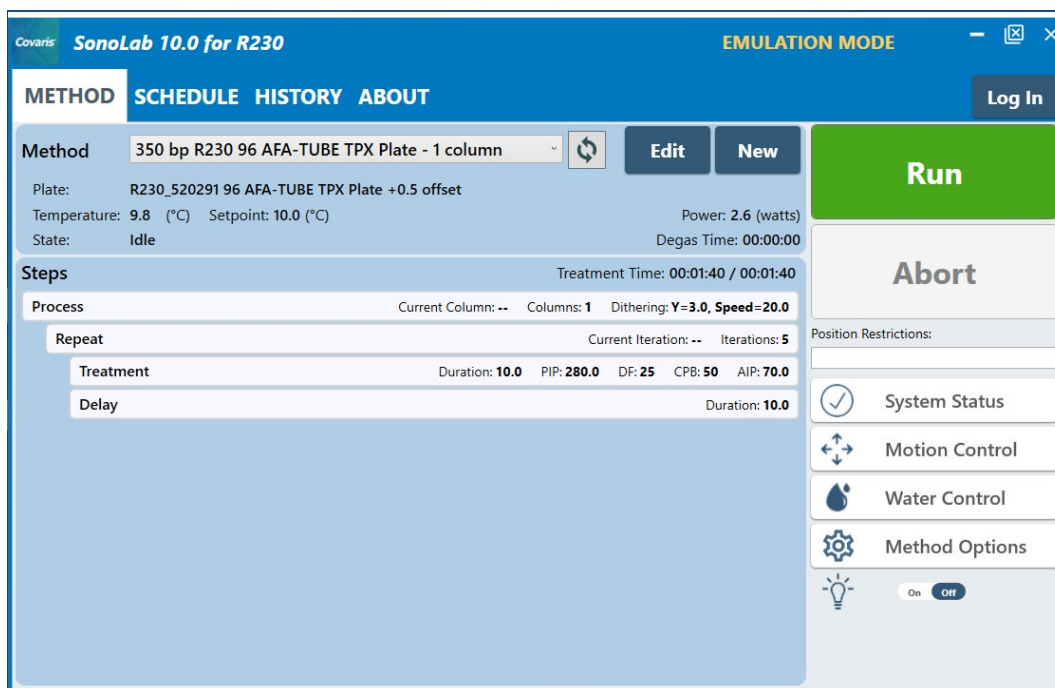
Appendix B: 350 bp Protocol on SonoLab 10.0 for R230 – 1 column

Following are some example screenshots for processing of 350 bp protocol with 1 column of the AFA-TUBE TPX Plate in the Method Editor and Method Screen.

Shearing Protocol in Method Editor



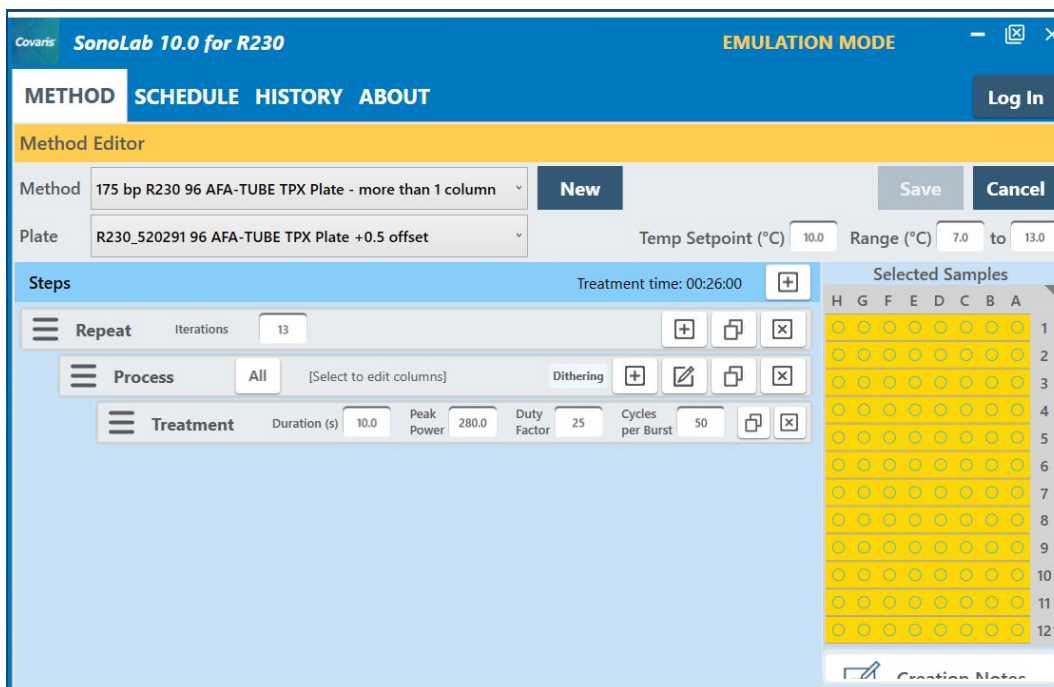
Shearing Protocol in Method Screen



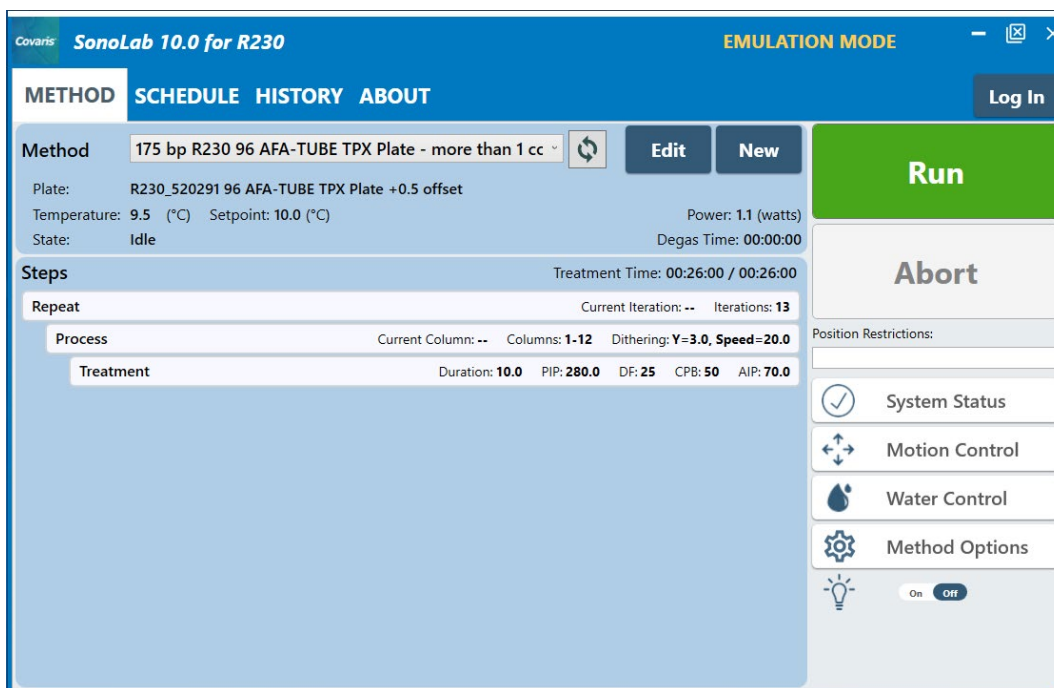
Appendix C: 175 bp Protocol on SonoLab 10.0 for R230 – more than 1 column

Following are some example screenshots for processing of 175 bp protocol with more than 1 column of the AFA-TUBE TPX Plate in the Method Editor and Method Screen.

Shearing Protocol in Method Editor



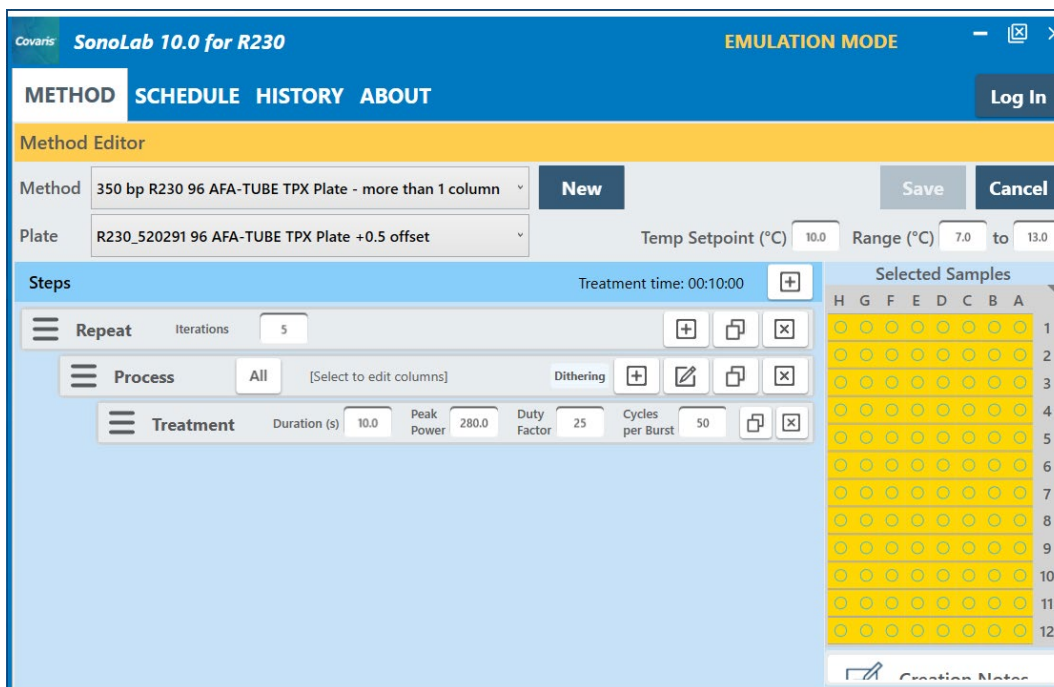
Shearing Protocol in Method Screen



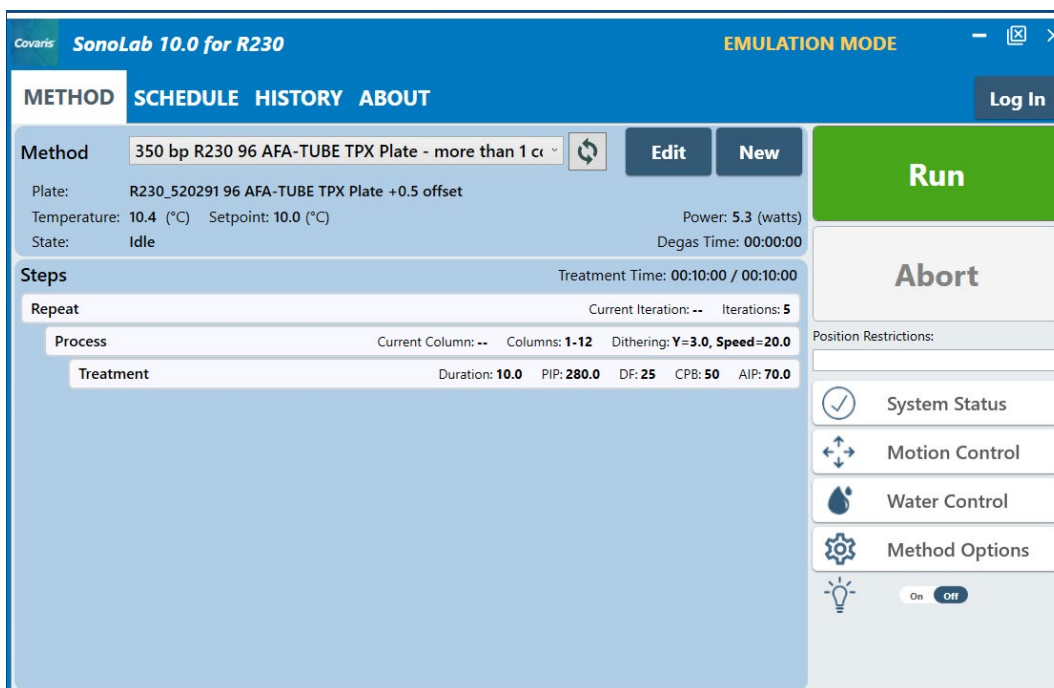
Appendix D: 350 bp Protocol on SonoLab 10.0 for R230 – more than 1 column

Following are some example screenshots for processing of 350 bp protocol with more than 1 column of the AFA-TUBE TPX Plate in the Method Editor and Method Screen.

Shearing Protocol in Method Editor



Shearing Protocol in Method Screen



Technical Assistance

- By telephone (+1 781.932.3959) during the hours of 9:00 a.m. to 5:00 p.m., Monday through Friday, United States Eastern Standard Time (EST) or Greenwich Mean Time (GMT) minus 05:00 hours
- By e-mail at ApplicationSupport@covaris.com

Revision History

Part Number	Revision	Date	Description of Change
010528	A	7/2020	Initial release