

# TruSight Tumor 170 DNA Shearing Quick Guide

## DNA Shearing with M220/ME220/E220/LE220/LE220-plus/LE220R-plus/LE220Rsc

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The protocols presented in this DNA Shearing Quick Guide feature a pulsing mode, developed to deliver higher DNA recovery and enhanced QC metrics (variants and coverage) for library preparation and downstream sequencing applications.

### Values are nominal values. The tolerances are as follows:

- Temperature +/-2 °C
- Sample volume:
  - microTUBE-50: 55 µL, ± 2.5 µL

### Sample Guidelines

- DNA input: microTUBE-50 up to 5 µg 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 treatments.

### Instrument Setup

- Refer to the instrument manual for complete setup
- microTUBE-50 consumables require specific racks

### Instrument Settings

- Recommended settings are subject to change without notice
- Supported SonoLab Versions
  - LE220-plus: 8.4 or above
  - ME220: 8.0.1 or above
  - LE220: 7.3 or above
  - E220: 7.3 or above
  - M220: 7.2 or above
- **For the current printable version of this protocol ([PN 010515](#))**


### Analysis

- Customers should perform their own QC as performances vary with analytical systems, library preparation, and sequencing methods. Typically, Covaris creates DNA shearing protocol guidelines to a target base pair of +/- 15% with a %CV < 10% as analyzed using the Agilent, Bioanalyzer High Sensitivity DNA Kit, cat# 5067-4626.
- DNA fragment distribution will vary with analytical systems. To reach desired fragment size distribution, carry out a time course experiment based on settings provided in this document. There is size bias with different analyzers, chips, kits, buffers, and origin of DNA. Please see [Variability in DNA Fragment Size and Distribution Analysis Across Various Fragment Analyzers](#) for additional details.

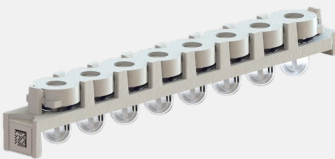
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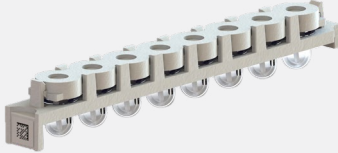
M220

|                                   |  |
|-----------------------------------|--|
|                                   | <b>microTUBE-50 AFA Fiber Screw-Cap</b>  |
| <b>Vessel</b>                     |  |
| <b>Part Number (PN)</b>           | 520166   |
| <b>SonoLab Version</b>            | 7.2 or above   |
| <b>Holder</b>                     | M220 Holder XTU (PN 500414)  |
| <b>Insert</b>                     | M220 Holder XTU Insert microTUBE-50 (PN 500488)                                    |
| <b>Delay Time (sec)</b>           | 10   |
| <b>Repeat/Iterations</b>          | 10   |
| <b>Bath Temperature (°C)</b>      | 10   |
| <b>Peak Incident Power (W)</b>    | 25   |
| <b>Duty Factor (%)</b>            | 40   |
| <b>Cycles per Burst (cpb)</b>     | 1000   |
| <b>Treatment Time (sec)</b>       | 10   |
| <b>Total Treatment Time (sec)</b> | 100  |

ME220

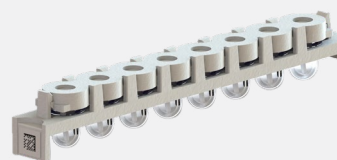
|                                       |  |  |
|---------------------------------------|--|--|
| Vessel                                | 8 microTUBE-50 AFA Fiber Strip V2 (PN 520174)                                      | 8 microTUBE-50 AFA Fiber H-Slit Strip V2 (PN 520240) |
|                                       |  |  |
| SonoLab Version                       | 8.0.1 or above   |  |
| Sample Volume                         | 55 µl  |  |
| Holder                                | ME220 Rack 8 microTUBE Strip V2 (PN 500518)  |  |
| Rack Definition                       | "8 microTUBE-50 Strip V2 PN 520174.2"  | "8 microTUBE-50 H Slit Strip V2 PN 520240.2"         |
| Waveguide                             | ME220 Waveguide 8 Place (PN 500526)  |  |
| Delay Time (sec)                      | N/A  |  |
| Repeat/Iterations                     | 16   |  |
| Bath Temperature (°C)                 | 10   |  |
| Peak Incident Power (W)               | 50   |  |
| Duty Factor (%)                       | 30   |  |
| Cycles per Burst (cpb)                | 1000   |  |
| Treatment Time (sec)                  | 10   |  |
| Total Treatment Time per Sample (sec) | 160  |  |

## E220

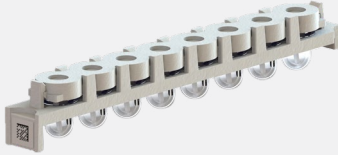
| Vessel                                | 8 microTUBE-50 AFA Fiber Strip V2<br>(PN 520174)                                   | 8 microTUBE-50 AFA Fiber H-Slit Strip V2<br>(PN 520240) |
|---------------------------------------|--|---|
|                                       |  |   |
| SonoLab Version                       | 7.3 or above   |   |
| Sample Volume                         | 55 $\mu$ l   |   |
| Holder                                | Rack 12 Place 8 microTUBE Strip V2 (PN 500444)                                     |   |
| Plate Definition                      | "E220_500444 Rack 12 Place 8 microTUBE-50 Strip V2 -10mm offset"                   |   |
| Water Level                           | -2   |   |
| Intensifier                           | Yes (PN 500141)  |   |
| Dithering                             | N/A  |   |
| Delay Time (sec)                      | N/A  |   |
| Repeat/Iterations                     | 18   |   |
| Bath Temperature ( $^{\circ}$ C)      | 7  |   |
| Peak Incident Power (W)               | 75   |   |
| Duty Factor (%)                       | 15   |   |
| Cycles per Burst (cpb)                | 1000   |   |
| Treatment Time (sec)                  | 10   |   |
| Total Treatment Time per Sample (sec) | 180  |   |

## LE220

| Vessel                                | 8 microTUBE-50 AFA Fiber Strip V2<br>(PN 520174)                     | 8 microTUBE-50 AFA Fiber H-Slit Strip V2<br>(PN 520240) |
|---------------------------------------|--|---|
| SonoLab Version                       | 7.3 or above   |   |
| Sample Volume                         | 55 µl  |   |
| Holder                                | Rack - XT 12 Place 8 microTUBE Strip V2 (PN 500485)                  |   |
| Plate Definition                      | "LE220_500485 Rack-XT 12 Place 8 microTUBE-50 Strip V2 -12mm offset" |   |
| Water Level                           | -2   |   |
| Dithering                             | 0.5mm X-dither & 0.5mm Y-dither at 10mm/sec                          |   |
| Delay Time (sec)                      | 10   |   |
| Repeat/Iterations                     | 20   |   |
| Bath Temperature (°C)                 | 7  |   |
| Peak Incident Power (W)               | 450  |   |
| Duty Factor (%)                       | 20   |   |
| Cycles per Burst (cpb)                | 1000   |   |
| Treatment Time (sec)                  | 10   |   |
| Total Treatment Time per Sample (sec) | 200  |   |



LE220-plus, LE220R-plus, and LE220Rsc

| Vessel                                | 8 microTUBE-50 AFA Fiber Strip V2<br>(PN 520174)                                   | 8 microTUBE-50 AFA Fiber H-Slit Strip V2<br>(PN 520240) |
|---------------------------------------|--|---|
|                                       |  |   |
| SonoLab Version                       | 8.4 or above   |   |
| Sample Volume                         | 55 µl  |   |
| Holder                                | Rack - XT 12 Place 8 microTUBE Strip V2 (PN 500485)                                |   |
| Plate Definition                      | "LE220plus_500485 Rack-XT 12 Place 8 microTUBE-50 Strip V2 -12mm offset"           |   |
| Dithering                             | 0.5mm X-dither & 0.5mm Y-dither at 10mm/sec  |   |
| Delay Time (sec)                      | 10   |   |
| Repeat/Iterations                     | 20   |   |
| Bath Temperature (°C)                 | 7  |   |
| Peak Incident Power (W)               | 450  |   |
| Duty Factor (%)                       | 20   |   |
| Cycles per Burst (cpb)                | 1000   |   |
| Treatment Time (sec)                  | 10   |   |
| Total Treatment Time per Sample (sec) | 200  |   |

Please refer to the respective instrument User Manuals for SonoLab uninstallation/reinstallation instructions. Please refer to the respective instrument DNA Shearing Quick Guides for detailed instructions on how to program these methods.

For LE220-plus instruments with SonoLab 8.3 or below,  
please contact Covaris at [TechSupport@covaris.com](mailto:TechSupport@covaris.com) to upgrade instrument to SonoLab 8.4 or above.

For ME220 instruments with SonoLab 8.0.0 or below,  
please contact Covaris at [TechSupport@covaris.com](mailto:TechSupport@covaris.com) to upgrade instrument to SonoLab 8.0.1 or above.