truSHEAR™…
The Covaris Shearing Buffer

Achieve highest NGS library yield and highest sequencing complexity…with the lowest input.

Introduction
The truSHEAR buffers are specifically formulated to offer optimized solutions for NGS sample preparation and are compatible with downstream library prep methodologies.

- Optimized NGS library preparation with universal shearing buffers
- Improved library yield and sequencing complexity…especially with low mass input
- Increased “sequencable” libraries with highly reproducible and narrow DNA fragment size distributions
- Seamlessly incorporated into current NGS library prep workflows

The Covaris Adaptive Focused Acoustics® (AFA®) technology is ideal for low input samples. Powered by AFA-energetics™, the system is isothermal, non-contact, mechanical fragmentation, and unbiased. Specifically designed to enhance yields of low mass (<200 ng) and/or for targeted enrichment workflows (<200 bp), truSHEAR ensures robust results with AFA regardless of input amounts. By adding the truSHEAR buffer to the sample, researchers can take full advantage of AFA technology, which is optimized to generate tight fragment distribution, fundamental to obtaining uniform genome coverage and high complexity libraries.

The Next Generation Shearing Buffer AFA

Figure 1A illustrates the percent increase in library yield improvement when adding truSHEAR vs. processing samples with AFA in low TE alone at 100 ng DNA input. At a 1 ng input, adding truSHEAR buffer generates a 62% improvement in library yield, thus enabling greater library complexity for low input clinical sequencing applications.

Figure 1B illustrates the percent increase in library yield improvements when adding truSHEAR vs. processing samples with AFA in low TE alone at 1 ng DNA input.

![Library Yield Improvement Chart]

**Figure 1A and B** – Swift Accel 2S NGS Library yield improvement when using truSHEAR Buffer. Input is a mix of bacterial DNA (AT and GC rich). Library yield was assessed without amplification (100 ng) or post amplification (1 ng). Data are courtesy of Swift Biosciences.
AFA - The Gold Standard of DNA Fragmentation

Mechanical DNA shearing using AFA technology is recognized as the gold-standard for DNA fragmentation in NGS library preparation workflows. AFA hydrodynamic shear force-based DNA fragmentation is strictly mechanical, and thus it guarantees a highly controlled process while yielding random, unbiased DNA fragment distributions.

truSHEAR Buffer used in conjunction with Covaris AFA instruments and consumables generates highly reproducible and narrow DNA fragment size distributions as illustrated in Figure 2. These distributions are directly compatible with most library preparation protocols, without requiring further DNA size selection, and thus enabling higher library yield and a streamlined workflow.

![DNA fragment size distribution](image)

**FIGURE 2** - DNA fragment size distribution after mechanical DNA shearing in truSHEAR Buffer, for targeted mean size of 150 bp. DNA fragments were analyzed on Fragment Analyzer (Advanced Analytical).

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN 520247</td>
<td>truSHEAR Buffer 11x (550 µl)</td>
<td>truSHEAR Buffer optimized for AFA mechanical DNA Shearing. Formulated at 11x for DNA conditioning before processing. For example, with 50 µl sample volume, this is appropriate for 100 samples.</td>
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<tr>
<td>PN 520248</td>
<td>truSHEAR Buffer 11x (5.5 ml)</td>
<td>truSHEAR Buffer optimized for AFA mechanical DNA Shearing. Formulated at 11x for DNA conditioning before processing. For example, with 50 µl sample volume, this is appropriate for 1000 samples.</td>
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