

X8™ HMW DNA Cartridge Kit

For use with Xceler8™ Platform



Advancing human health
through innovation



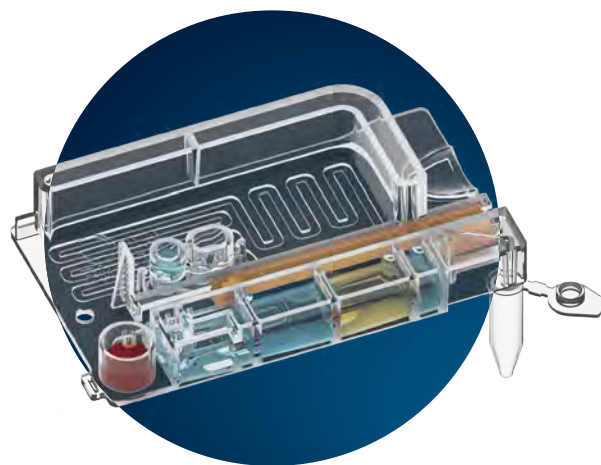
One BioMed

X8™ HMW DNA Cartridge Kit

The world's first integrated platform for automated HMW DNA Extraction.

Our proprietary chemistry and integrated cartridge architecture rapidly automates the extraction of high-quality, High Molecular Weight (HMW) DNA from bacteria, plants, tissue, cell culture and Peripheral Blood Mononuclear Cells (PBMCs).

The X8 Cartridge Kits include all necessary reagents for efficient HMW DNA extraction. The lysis buffer has been optimized to gently extract intact DNA, thereby ensuring the extracted HMW DNA is suitable for various downstream applications such as long-read sequencing and *de novo* genome assembly. The X8 Cartridge Kits are also non-volatile and ethanol-free, making them easy to ship and store at room temperature.



PLATFORM HIGHLIGHTS



Novel technology. Purify up to 2 Mb UHMW DNA, using gentle chemistry & controlled fluidics-based method.



Ready-to-use. Easily process samples in cartridges, packed with all essential reagents.



Automated extraction. Get high-purity and yield of UHMW DNA at the push-of-a-button.



Versatile workflow. Gain unparalleled flexibility with random-access sample loading.



High-purity & yield. Extract intact DNA from bacteria, plants, tissue, cell culture & PBMC sample types.



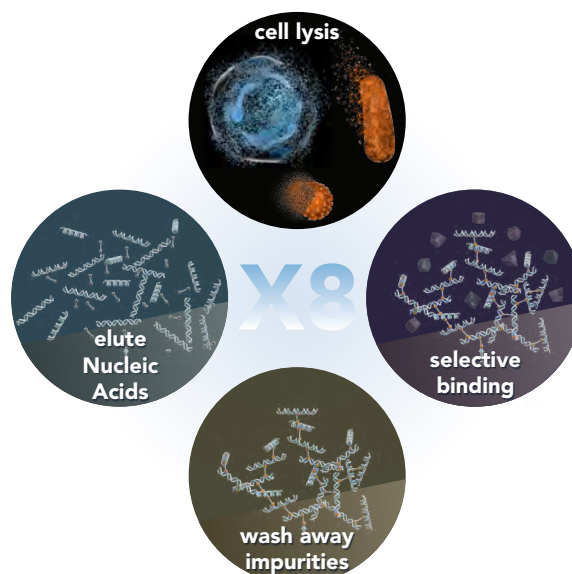
Reliable cleaning. Minimize clean up & cross-contamination with fully closed architecture and built-in waste reservoir.

Powered by Xceler8™ Technology

Breakthrough Technology

Most commercial extraction technologies compromise the quality and length of the extracted DNA, as they include mechanical steps like centrifugation or vortexing, and/or alcohol precipitation in their labor-intensive workflows.

One BioMed's patented Xceler8 Technology is re-defining nucleic acid extraction. The novel chemistry-based approach uses a reversible cross-linker to selectively bind & gently cluster intact DNA from the lysed samples on to the surface of the cartridge. Once impurities are washed away using controlled fluidics & sealed in the built-in waste reservoir, the purified HMW DNA is released and eluted using an elution buffer. The Xceler8 Platform ensures consistent and reproducible extraction of HMW DNA up to 2 Mb range.

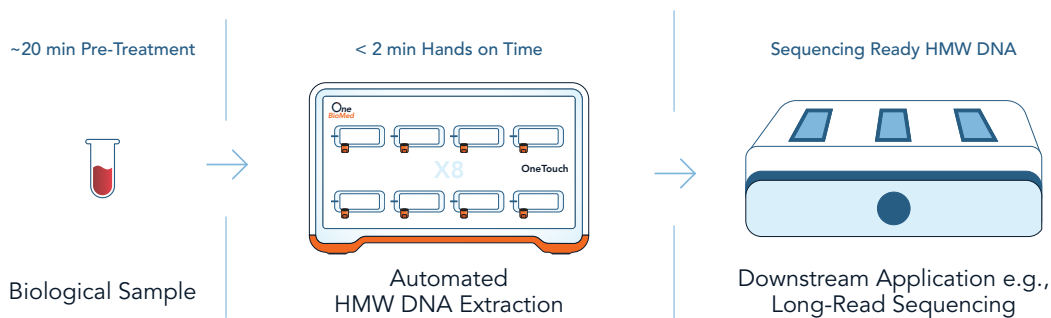


X8 Workflow

Fit seamlessly into your long-read sequencing workflow

Long-read sequencing sheds light on certain “blind-spots” seen in short-read sequencing methods. However it requires isolation of HMW DNA which can be challenging to obtain.

One BioMed’s disruptive Xceler8 Technology significantly expedites and seamlessly automates the process of HMW DNA extraction from a myriad of sample types. The purified HMW DNA is suitable for various downstream applications including long-read sequencing (Oxford Nanopore Technologies® and Pacific Biosciences®) and *de novo* genome assembly.



High-Quality & Consistent Performance of the X8 HMW DNA Kit

Extracted DNA was analyzed using Pulse-Field Gel Electrophoresis (PFGE) to assess the size distribution of HMW DNA fragments. All sample types yielded HMW DNA (≥ 50 kb). The X8 HMW protocol yielded fragments up to 500 kb and the X8 UHMW protocol yielded fragments up to 2 Mb for certain sample types.

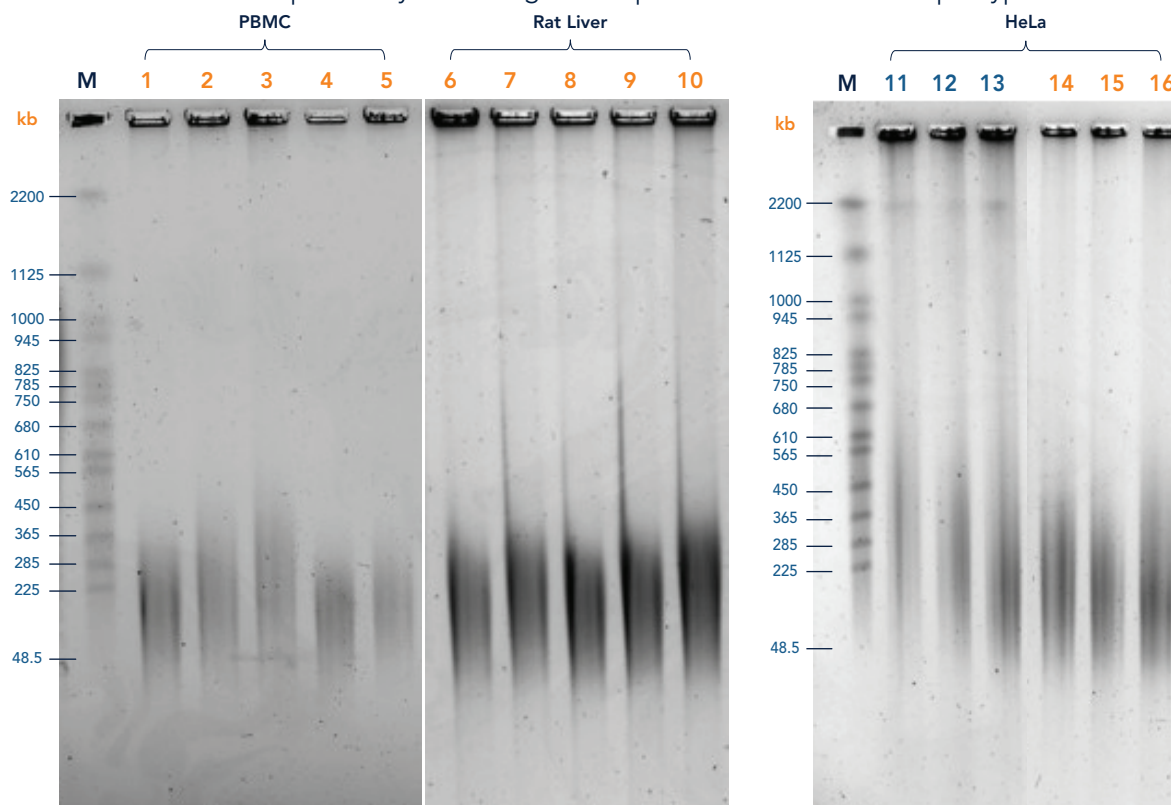


Figure 1. Pulse-Field Gel Electrophoresis (PFGE) analysis. HMW DNA was extracted from three different sample types using the automated X8 HMW DNA Cartridge Kit. Lanes 1-5, replicates of 2×10^6 PBMC. Lanes 6-10, replicates of frozen Rat Liver tissue (20 mg). Lanes 11-13, replicates of 1×10^6 HeLa cells (UHMW protocol) and Lanes 14-16, replicates of 1×10^6 HeLa cells (HMW protocol). M= CHEF DNA Size Marker, 0.2-2.2 Mb, *S. cerevisiae*.

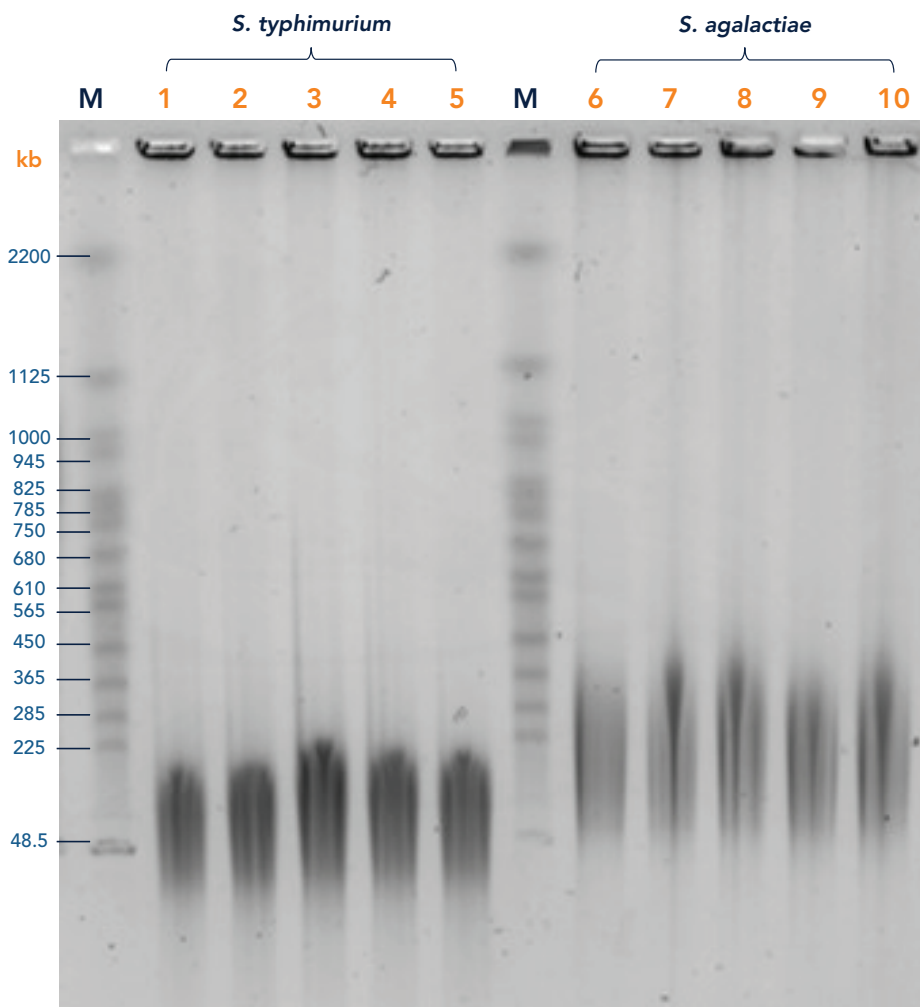


Figure 2. Pulse-Field Gel Electrophoresis (PFGE) analysis. HMW DNA was extracted from two different bacterial sample types using the automated X8 HMW DNA Cartridge Kit. Lanes 1-5, replicates of 1×10^9 *S. typhimurium*. (Gram-negative bacteria). Lanes 6-10, replicates of 1×10^9 *S. agalactiae* (Gram-positive bacteria). M= CHEF DNA Size Marker, 0.2-2.2 Mb, *S. cerevisiae*.

Table 1. Yield and Purity. HMW DNA was extracted from several sample types using the automated X8 HMW DNA Cartridge Kit. Yield of the extracted HMW DNA was assessed using Invitrogen Qubit 4 Fluorometer in conjunction with Qubit 1X dsDNA HS Assay Kit (ThermoFisher Scientific) and purity was assessed using NanoDrop™ 2000 Spectrophotometer (ThermoFisher Scientific). UV absorbance readings were taken at 260 nm and 280 nm, and absorbance ratio (A 260/280) was determined.

SAMPLE TYPE	INPUT	AVG. YIELD (µg)	AVG. PURITY (A 260/280)
Blood (PBMC)	2×10^6 cells	6.1	1.83
Rat Liver	20 mg	17.8	1.83
HeLa	1×10^6 cells	11.2	1.89
<i>S. typhimurium</i>	1×10^9 cells	8.9	1.83
<i>S. agalactiae</i>	1×10^9 cells	20.9	1.85

Table 2. Quantitative Fragment Analysis. The size distribution of fragments in HMW DNA samples was quantitated using the Agilent Femto Pulse System. The GQN (Genomic Quality Number) metric indicates the percentage of fragments that are of a designated size or larger. Using this approach, samples extracted using the automated X8 HMW DNA Cartridge Kit were analyzed, and the results reported in the table below. The data indicate the majority of extracted DNA is over 150 kb in most sample types.

SAMPLE TYPE	% DNA > 20 kb (GQN 20 kb)	% DNA > 50 kb (GQN 50 kb)	% DNA > 100 kb (GQN 150 kb)	% DNA > 150 kb (GQN 150 kb)
Blood (PBMC)	92	78	72	64
Rat Liver	83	51	47	44
HeLa	84	73	60	42
<i>S. typhimurium</i>	94	81	64	41
<i>S. agalactiae</i>	93	72	67	63

Xceler8 Products

INSTRUMENT		CATALOG NO.
X8 OneTouch Instrument		X8-OT-101-IN
CARTRIDGE KITS, 24 PREPS		CATALOG NO.
DNA	X8 HMW DNA Kit	X8-HD-001-24
	X8 Genomic DNA Kit	X8-GD-001-24
	X8 Tissue DNA Kit	X8-TD-001-24
RNA	X8 Cellular RNA Kit	X8-CR-001-24
	X8 Tissue RNA Kit	X8-RT-001-24
	X8 Viral RNA Kit	X8-VR-001-24

Research Areas

- Cancer research
- Genetic disorders
- Pathogens & Microbial

Application Areas

- Long-read sequencing
- *de novo* genome assembly
- Genome finishing

Contact us

web onebiomed.com | **email** X8@onebiomed.com

address 4 Fusionopolis Way, Kinesis, #06, Singapore 138635

Copyright © One BioMed Pte. Ltd. All rights reserved.
FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.
SAM-0016-EN RevA