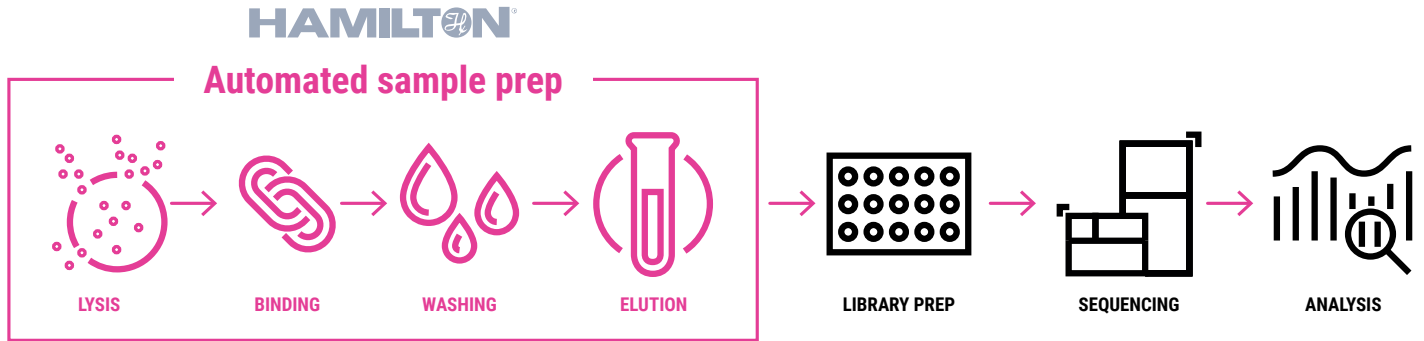


NANOBIND HIGH-THROUGHPUT HMW DNA EXTRACTION

Automate DNA extraction and optimize your sample prep workflow for HiFi sequencing

PacBio® Nanobind® HT kits enable automation of DNA extraction, the first step of an end-to-end workflow that harnesses the power of HiFi sequencing. Nanobind HT kits are designed for whole human blood and mammalian cell samples and are compatible with four robotic platforms.



Nanobind HT kits

Nanobind HT CBB kit for 200 µL human blood and mammalian cell samples (96 reactions)

- Expected HMW DNA yield: 3–12 µg for human blood (for donor WBC count $\geq 4 \times 10^6$ cells/mL) and 5–15 µg for mammalian cells (for 10^6 cells)

Nanobind HT 1 mL blood kit for 1 mL human blood (96 reactions)

- Expected HMW DNA yield: 3–70 µg



An automated solution

Nanobind HT kits use magnetic disk processing to automate lysis, binding, washing and elution steps and are compatible with instruments from Hamilton and Thermo Fisher. Hamilton NIMBUS Presto is a walk away solution with automated plate filling. Thermo Fisher KingFisher instruments are semi-automated with manual plate filling and limited user interaction during the run.

Sample	Robotic instrument	Input sample	DNA yield (µg)	A260/A280 ratio	A260/A230 ratio	DNA mean size (kb)	GQN at 10 kb	HiFi mean read length (bp)	HiFi yield (Gb)
Mammalian cell (HG001)	NIMBUS Presto	10 ⁶ cells	6.4	1.92	2.04	167	9.4	16,563	41.9
Mammalian cell (HG001)	Apex	10 ⁶ cells	7.0	1.88	2.08	113	9.6	16,544	35.4
Whole human blood	NIMBUS Presto	200 µL	7.0	1.83	1.96	98	9.4	18,067	37.3
Whole human blood	Apex	200 µL	6.1	1.83	1.80	124	9.7	13,026	34.8
Whole human blood	NIMBUS Presto	1 mL	32.6	1.86	1.86	94	9.3	17,163	36.8
Whole human blood	Apex	1 mL	36.4	1.89	2.18	115	9.4	15,863	36.1

The table above shows automated extracted DNA from mammalian cells and human whole blood sequenced on the Sequel® IIe system. Mean DNA size is approximately 100 kb and over 93% of the DNA molecules are longer than 10 kb (GQN score). Sequencing results show HiFi yield > 35 Gb, mean read length at 13–18 kb and limited fragments of <8 kb.

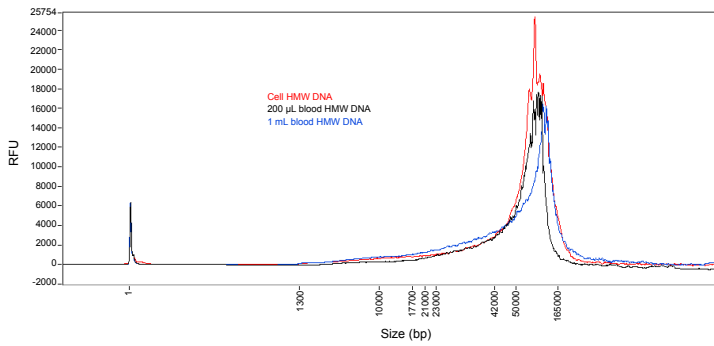


Figure 1. HMW DNA size distribution extracted with Nanobind HT kits with the KingFisher Apex robot on the Femto pulse system (Agilent technologies).

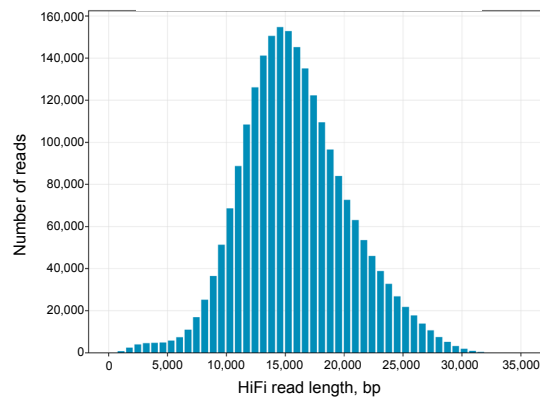


Figure 2. HiFi read length distribution for 1 mL blood HMW DNA extracted with the KingFisher Apex robot and sequenced on the Sequel IIe system.

Robotic Instrument	Instrument design	Samples per run – 200 µL blood/cell	Samples per run – 1mL blood	Total time	Hands-on time
KingFisher Duo Prime	Compact benchtop sample purification system (\$)	12	6	1 hr, 20 min– 1 hr, 55 min	10–15 min
KingFisher Flex	Benchtop sample purification system (\$\$)	96	24	1 hr, 40 min– 2 hr, 15 min	40–45 min
KingFisher Apex	Benchtop sample purification system with touchscreen (\$\$)	96	24	1 hr, 40 min– 2 hr, 15 min	40–45 min
Hamilton NIMBUS Presto	Robotic liquid handler workstation with integrated KingFisher Presto Sample purification system (\$\$\$)	96	24	2 hr, 20 min– 2 hr, 35 min	20 min



Ordering information:

Nanobind HT CBB kit PN 102-762-700

Nanobind HT 1mL blood kit PN 102-762-800

Protocol information: **Nanobind HT HMW DNA extraction-robotic procedures**



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