



Optimized Sample Preparation for Optical Genome Mapping



Bionano Sample Preparation Kits provide the reagents and protocols needed to extract and label ultra-high molecular weight (UHMW) DNA for use on the Saphyr® system. These kits are optimized for performing optical genome mapping on various sample types. Bionano sample kits are developed for isolating and purifying UHMW DNA in a process that is gentler than most existing* UHMW DNA extraction methods. The resulting purified DNA, several megabases in length, is optimal for use with Bionano systems. Each Generation 2 (G2) Bionano Prep Kit allows you to perform 12 UHMW DNA preps.

SAMPLE PREP

Bionano kits and protocols enable the extraction of UHMW DNA from a variety of sample types including fresh and frozen: Cell lines, Human Blood, and Tissue and Tumor; and frozen Bone Marrow Aspirates (BMA).



Fresh and Frozen Cell Lines



Fresh and Frozen Blood



Frozen Bone Marrow Aspirate



Fresh and Frozen Tissue
and Tumor

Generation 2 Coming Soon

Starting with UHMW DNA purified using the appropriate Bionano Prep™ kits, fluorescent labels are attached to specific sequence motifs. The result is uniquely identifiable genome-specific label patterns that enable de novo map assembly, anchoring sequencing contigs and discovery of structural variations starting at 500 bp.

HIGHLIGHTS



Make the most of precious samples with an optimized kit and protocol that takes the guesswork out of ultra-high molecular weight DNA isolation



Consolidate and shorten your experimental workflow to as few as 3 days



Get started immediately by leveraging an easy-to-use kit that does not require expertise in DNA extraction



Have confidence in your sample inputs and quality by using reliable, standardized reagents designed for Bionano OGM analysis



Simplified Workflow for Optical Genome Mapping



Product	SP-G2	→	DLS-G2	→	G3.3 Chip	→	Saphyr	→	Compute/Access
Application Type Raw coverage/ Effective coverage goals	ISOLATION		LABELING		LOADING		IMAGING		ANALYSIS
Constitutional 400 Gbp / 80x	3.5 – 4.5 hours		5 – 5.5 hours		1 hour		5.5 – 7.5 hours		12 - 16 hours
Constitutional 800 Gbp / 160x	3.5 – 4.5 hours		5 – 5.5 hours		1 hour		10 – 14 hours		12 - 16 hours
Cancer (Blood/Cell) 1,500 Gbp / 300x	3.5 – 4.5 hours		5 – 5.5 hours		1 hour		17 – 26 hours		8 hours
Cancer (BMA) 1,500 Gbp / 300x	4 – 5 hours		5 – 5.5 hours		1 hour		24 – 34 hours		8 hours

40 Gbp per scan in Constitutional (400 Gbp and 800 Gbp) and Cancer (Blood/Cell)
30 Gbp per scan in BMA (1500 Gbp)



PRODUCT FEATURES

- Unified workflow for DNA extraction and labeling
- Complete sample preparation kit includes all consumables and reagents needed for UHMW DNA isolation, removing logistical constraints for reagent sourcing
- Capacity to prepare samples in parallel, enabling sample batching and scaling up of experiments
- Built-in cleanup step reduces sample preparation time and eliminates the need for additional reagents
- Kit and protocol validated for optical genome mapping minimizes the need for sample prep optimization, saving time and resources



SAMPLE PREP WORKFLOW



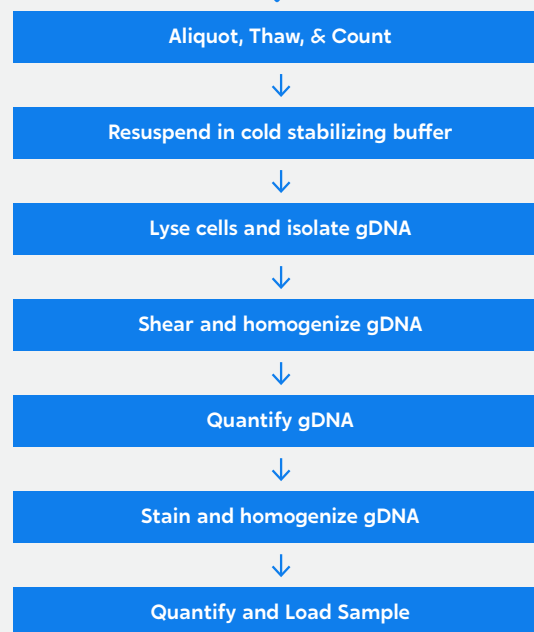
Fresh and Frozen Cell Lines



Fresh and Frozen Blood



Frozen Bone Marrow



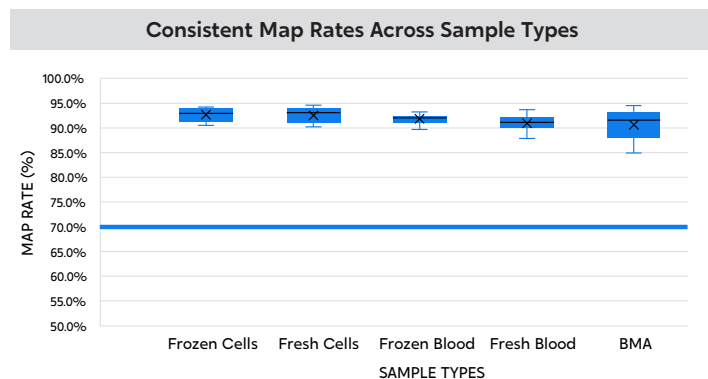
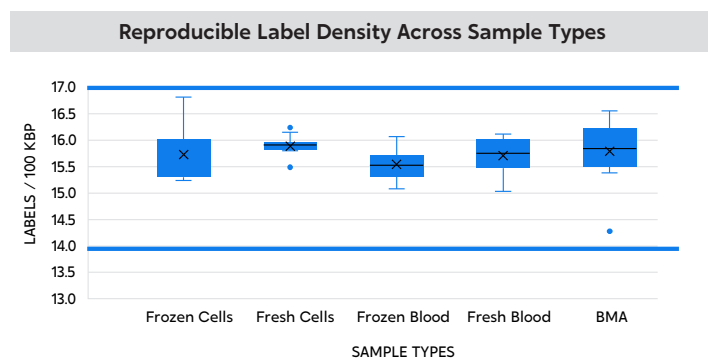
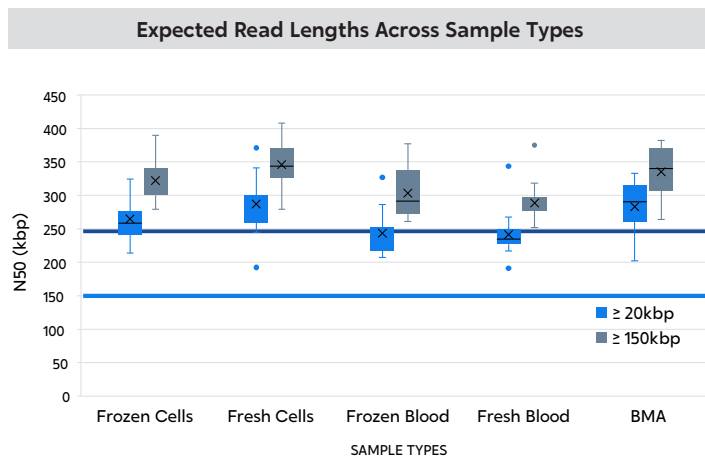
Each sample type has an optimized protocol which mainly follow similar steps to the above



Generation 2 (G2) provides Consistent and Reproducible Results

Sample Preparation (SP-G2) and Direct Label and Stain (DLS-G2) Generation 2 reagents improve ease-of-use, workflow repeatability and data quality.

As seen in the quality metrics of N50, Label Density, and Map Rate, all data points exceed metrics established for OGM performance, as published in the Bionano Molecule Quality Report Guidelines (P/N 30175), across all 5 sample types.



PRODUCT SPECS

- Support for 5 different sample types in Generation 2: fresh and frozen blood, fresh and frozen cells, and frozen BMA
- Ability to isolate UHMW DNA from 1.5 million cells
- Reagent stability >= 1 year
- Capacity to perform up to 12 samples in a day
- DNA isolated using the SP-G2 protocol achieves:
 - >= 90% first pass success rate
 - >= 95% cumulative overall success rate
- Optimized to use with Saphyr Chip® G3.3

Enhance Throughput by Adding the Power of Automation to Your Workflow



Bionano has partnered with the Hamilton to deliver the world's first automated platform for the isolation of ultra-high molecular weight DNA: The Hamilton Long String VANTAGE.

The Long String VANTAGE is an assay-ready workstation that functions seamlessly with Bionano's G2.LS DNA Isolation Kits. Using a single Long String Vantage platform, a single operator can isolate UHMW DNA from 24 samples per day.

**Bionano SP-G2.LS kits are currently available for early adopters



Product Names/Part numbers

Catalog #	Component	
Generation 2		
80060	Bionano Prep SP-G2 Blood and Cell DNA Isolation Kit - 12 reactions	For use with EDTA-collected blood and mammalian cell cultures. Compatible with Bionano DLS and DLS-G2 DNA Labeling Kits only. First-time users must order Bionano Prep SP Magnetic Retriever (#80031).
90151	Bionano Prep SP-G2 Bone Marrow Aspirate DNA Isolation Kit - 12 reactions	For use with heparin-collected bone marrow aspirates (BMA). Compatible with Bionano DLS and DLS-G2 DNA Labeling Kits only. First-time users must order Bionano Prep SP Magnetic Retriever (#80031).
80046	DLS-G2 DNA Labeling Kit - 12 reactions	Direct Label and Stain Kit, Generation 2, for use with Blood and Cell Culture DNA and Bone Marrow Aspirate DNA Isolation Kits. Not required for using the Bionano Prep Kit.
Generation 1		
80042	SP Blood & Cell Culture DNA Isolation Kit v2 - 10 reactions	For use with EDTA-collected blood and mammalian cell cultures. Compatible with Bionano DLS DNA Labeling Kit only. First-time users must order Bionano Prep SP Magnetic Retriever (#80031).
90103	Bone Marrow Aspirate (BMA) DNA Isolation Kit v2 - 10 reactions	For use with heparin-collected bone marrow aspirates (BMA). Compatible with Bionano DLS DNA Labeling Kit only. First-time users must order Bionano Prep SP Magnetic Retriever (#80031).
80038	SP Tissue and Tumor DNA Isolation Kit - 10 reactions	For use with human or animal tissue or tumor. Compatible with Bionano DLS DNA Labeling Kit only. First-time users must order Bionano Prep SP Magnetic Retriever (#80031).
80002	Animal Tissue DNA Isolation Kit - 10 reactions	For use with soft or fibrous animal tissue. Order with Bionano DLS DNA Labeling Kit or with Bionano NLRS DNA Labeling Kit.
80003	Plant DNA Isolation Kit - 5 reactions	For use with most plant tissues. Order with Bionano DLS DNA Labeling Kit or with Bionano NLRS DNA Labeling Kit.
80005	DLS DNA Labeling Kit - 10 reactions	Direct Label and Stain Kit for use with Bionano Animal Tissue, Plant, or Blood and Cell Culture DNA Isolation Kits. Not required for using the Bionano Prep Kit.
80001	NLRS DNA Labeling Kit - 10 reactions	Nicking, Labeling, Repairing and Staining Kit for use with Bionano Animal Tissue, Plant, or Blood and Cell Culture DNA Isolation Kits. Not required for using the Bionano Prep Kit.

To order, please contact orders@bionano.com,
call **1.858.888.7600** or contact your sales person directly.

