

Sample the tree of life with a single kit

The all-new PacBio® Nanobind® PanDNA kit consolidates the capabilities of our existing sample-specific offerings into a single solution for DNA extraction. This kit provides users with an all-in-one extraction experience that can be used with a wide range of sample types. The PanDNA kit supports high-quality extraction from cultured cells, bacteria, whole blood, tissue, plant nuclei, and insect samples.

All-in-one extraction experience



Lysis

The PanDNA kit contains specific reagents to process and lyse diverse sample types



Binding

Following lysis, DNA binds to Nanobind disks, which shield DNA from damage during extraction, resulting in HMW DNA



Size selection

A final short read eliminator (SRE) size selection step helps remove DNA fragments below 10 kb

Higher DNA quality means better HiFi data

Using the Nanobind PanDNA kit on a diverse set of samples demonstrates extraction yields between 4–16 µg and mode fragment sizes greater than 100 kb (greater than 65 kb for insects). Sequencing these samples on the Revio™ system yields an average of 103 Gb HiFi data per SMRT® Cell and optimal read lengths with a mean of 15–17 kb.

Sample type	Input material	DNA yield	DNA mode size	HiFi mean read length	HiFi yield	Median QV
RBC lysed human whole blood	400 µL	9.5 µg	97 Kb	17,518 bp	108 Gb	Q34
Human brain	6 mg	9.3 µg	195 Kb	16,164 bp	119 Gb	Q36
Human skeletal muscle	33 mg	3.9 µg	126 Kb	17,170 bp	101 Gb	Q33
Mouse lung	6 mg	9.1 µg	126 Kb	16,975 bp	121 Gb	Q35
Ladybug	27 mg	5.3 µg	67 Kb	16,034 bp	86 Gb	Q34
Apple leaf (nuclei prep)	1 g	11.3 µg	112 Kb	15,598 bp	106 Gb	Q35
Tobacco leaf (nuclei prep)	1 g	16.5 µg	140 Kb	14,649 bp	90 Gb	Q34

HiFi data yield from DNA sheared to 18–20 kb and size selected with the PacBio SRE kit. HiFi sequencing was performed on the Revio system with 225 pM loading and a P1 metric of 60–72%. HiFi data was analyzed with SMRT® Link v13.0.

Set up your sequencing for success

With flexible input amounts and diverse sample types, the PanDNA kit supports a highly customizable and efficient extraction workflow. The PanDNA kit yields high-quality libraries to optimize your sequencing.

Sample type	Sample detail	Input amount	Time
Blood	Mammalian whole blood	200 μ L	~1 hour
	Nucleated whole blood	2.5–20 μ L	
	Red blood cell lysis	400 μ L	<1.5 hours
Tissue (non-insect animals + humans)	Diverse tissue types	2–100 mg	~2.5 hours
Insect	Insect whole body or segment	>20 mg	
Plant	Plant leaf, nuclei prep	0.25–5 g	~1.5 hours
Cultured cell	Suspension cultured cells	1 \times 10 ⁶ –5 \times 10 ⁶ diploid human cells	~1 hour
	Adherent cultured cells		
Cultured bacteria	Gram-negative bacteria	5 \times 10 ⁸ –5 \times 10 ⁹ bacterial cells	
	Gram-positive bacteria		

Sample details and extraction procedure duration for diverse sample types.

KEY REFERENCES

1. Technical note: Extracting HMW DNA from diverse insect samples using Nanobind PanDNA kit for optimal HiFi sequencing
2. Overview of Nanobind PanDNA kit
3. Plant and animal applied market brochure



Learn more: pacb.com/nanobind

Ordering information: PanDNA kit (103-260-000)

Research use only. Not for use in diagnostic procedures. © 2024 Pacific Biosciences of California, Inc. ("PacBio"). All rights reserved. Information in this document is subject to change without notice. PacBio assumes no responsibility for any errors or omissions in this document. Certain notices, terms, conditions and/or use restrictions may pertain to your use of PacBio products and/or third-party products. Refer to the applicable PacBio terms and conditions of sale and to the applicable license terms at pacb.com/license. Pacific Biosciences, the PacBio logo, PacBio, Circulomics, Omniome, SMRT, SMRTbell, Iso-Seq, Sequel, Nanobind, SBB, Revo, Onso, Apton, Kinnex, and PureTarget are trademarks of PacBio.