

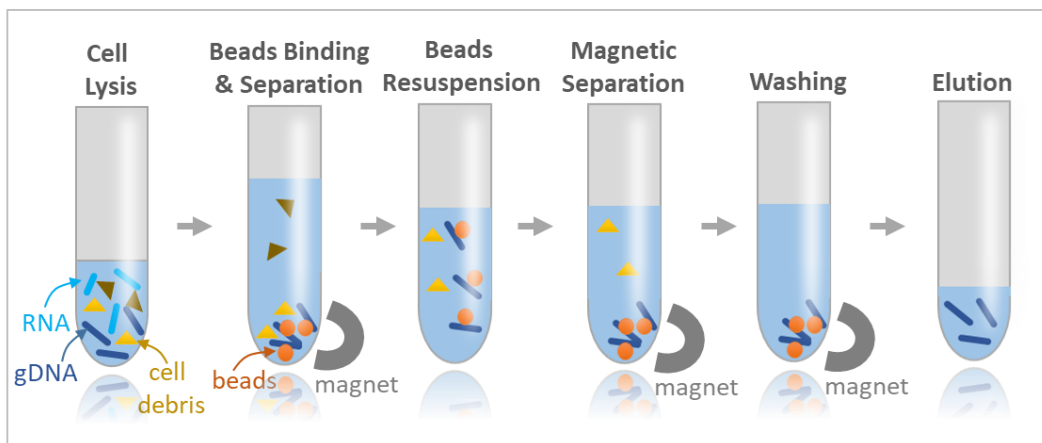
Genomic DNA Extraction Kit for Cells (HMW, Magnetic Beads)

Catalog No.	50014S	50014L
Preps	50 preps	200 preps

Description

The **Genomic DNA Extraction Kit for Cells (HMW, Magnetic Beads)** provides a reliable and fast process for extracting high molecular weight (HMW) genomic DNA from cultured cells using Solid Phase Reversible Immobilization (SPRI) magnetic beads. With our proprietary magnetic beads technology, the kit eliminates the tedious centrifuge steps for columns. The kit provides a reliable and simple approach for high-quality genomic DNA isolation with fast magnetic response time and high binding capacity.

The extracted HMW genomic DNA size ranges are dependent on the beads resuspension: 50-150 kb by tube tapping and 40-100 kb by tube vortexing. Purified DNA is recovered at high yield and high purity without RNA contamination. The typical purity ratios of A260/A280 are around 1.8-2.0, and A260/A230 are around 2.2-2.5. Purified HMW genomic DNA is suitable for applications such as long-read sequencing, linked-read genome assembly, long range PCR, optical mapping, and other general applications.



Cultured cells are collected and are resuspended in a buffer and then lysed with a lysis buffer, then mixed with beads to bind genomic DNA. The samples are mixed with a buffer and after washing steps, genomic DNA is eluted in the Elution Buffer. The isolated genomic DNA with the magnetic beads is free of contamination such as RNA, proteins, salts, and other impurities.

Features

- High molecular weight DNA: 50 kb to 150 kb
- High purity
- Simple magnetic beads method
 - No centrifuge needed
 - No column needed
 - No vacuum needed

Specifications	
Technology	Magnetic beads
Cell number	Up to 0.5 million
Genomic DNA size	50-150 kb (tube tapping) 40-100 kb (tube vortexing)
Genomic DNA yield	3-6 ug (0.25 -0.5 million cells)
Elution volume	100 µl
O.D. 260/280	1.8-2.0
O.D. 260/230	Above 2.0

Component

Catalog No.	50014S	50014L
TR Buffer	7.5 ml	30 ml
Lysis Buffer	12.5 ml	50 ml
gDNA Beads	7.5 ml	30 ml
RS Buffer	15 ml	60 ml
MB Buffer	12 ml	48 ml
Elution Buffer	5 ml	20 ml

Storage Condition

- Store gDNA Beads, TR Buffer, MB Buffer at 4°C, stable up to 12 months.
- Store Lysis Buffer, RS Buffer, and Elution Buffer at room temperature, stable up to 12 months.

Reagent & Equipment Needed (not provided in this kit)

- Magnetic particle concentrator
- Vortexer
- 1.5 ml or 2.0 ml tubes
- 80% isopropanol (prepare before use)
- 80% ethanol (prepare before use)

Protocol

Note: Resuspend gDNA beads completely before use.

1. Add 150 μ l of TR Buffer to the tube containing cultured cell pellet (up to 0.5 million cells) and mix by vortexing or pipetting. **Note:** In the case of more than 0.5 million cells, split the cells before processing. The high density of cells will make it difficult to resuspend DNA in solution.
2. Add 250 μ l of the Lysis Buffer and mix by rotating the tube for 5 min.
3. Add 150 μ l of the gDNA Beads, mix by inverting the tube 8 times and put the tube on a magnet rack immediately. Incubate for 4 min and carefully remove the supernatant using pipette tips. DO NOT touch the beads.
4. Add 300 μ l of RS Buffer towards the opposite side of the beads, incubate 1 min, remove samples from the magnet, resuspend the beads by one of the following:
 - a. Tapping or
 - b. vortexing**Note:** It may take 5 to 30 min to fully resuspend the beads. The extracted DNA size ranges are dependent on the beads resuspension: 50-150 kb by tapping and 40-10 kb by vortexing.
5. Transfer samples to new tubes.
6. Add 240 μ l of the MB Buffer, mix by inverting the tube 8 times and put the tube on a magnet rack immediately. Incubate for 4 min and carefully remove the supernatant using pipette tips. DO NOT touch the beads.
7. Add 800 μ l of 80% isopropanol, remove samples from the magnet, resuspend the beads clumps in solution by vortexing briefly and gently. Invert the tube several times and incubate for 2 min. Make sure all the beads clumps are in the solution.
8. Put samples on the magnet and discard the supernatant.
9. Add 800 μ l of 80% ethanol, remove samples from the magnet, resuspend the beads clumps in solution by vortexing briefly and gently. Invert the tube several times and incubate for 2 min. Make sure all the beads clumps are in the solution.
10. Put samples on the magnet and discard the supernatant. Dry the beads for 1 min and remove any residue solution using a pipette with fine tips.
11. Add 100 μ l of Elution Buffer (10 mM Tris, pH 8.0), resuspend the beads by one of the following:
 - a. tapping or
 - b. vortexing**Note:** It may take 5 to 30 min to fully resuspend the beads. The extracted DNA size ranges are dependent on the beads resuspension: 50-150 kb by tapping and 40-10 kb by vortexing. DNA can also be resuspended in TE buffer or Low TE buffer.
12. Put the samples on the magnet and transfer the supernatant (containing DNA) to new tubes.

Troubleshooting

Low DNA concentration

1. Make sure the cell number accounting is accurate.
2. Use cells less than 0.5 million. In the case of more than 0.5 million cells, split the cells before processing. The high density of cells will make it difficult to resuspend DNA in solution.
3. Resuspend gDNA beads completely before use.
4. Mix completely after adding the Lysis Buffer.
5. The gDNA Beads is viscous and make sure to add enough volume of gDNA Beads.
6. Make sure the beads are fully resuspended in the buffer (step 4 and 11).

RNA contamination

1. Extend incubation time from step 2 to 5-10 min.
2. Extend incubation time from step 3 to 5-10 min.

Low O.D. 260/230

1. Discard supernatant completely when washing (step 8 and 10).
2. Remove any residue solution using a pipette with fine tips at step 10.

Quality Control

Kit components passed stringent functional quality test.

Product Use Limitation




This product is developed and sold for research purposes and *in vitro* use only. Please refer to biodynami.com for Material Safety Data Sheet of the product.

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Aug. 2023