Product Description

AcuGenix™ NGS DNA Clean Beads is based on superparamagnetic beads and an optimized buffer system. By using specific bead suspension ratios, nucleic acid fragments of different sizes can be recovered or size-selected. This product is suitable for DNA and RNA library preparation kits from various brands and can be used in the same way as the widely used AMPure XP Beads. It can be operated manually or applied to automated liquid handling workstations for high-throughput workflows.

Components

Product Name	Cat. No.	Size
AcuGenix™ NGS DNA Clean Beads	BR3N401-01	1 mL
	BR3N401-02	5 mL
	BR3N401-05	60 mL
	BR3N401-06	450 mL

Storage

Store at 2-8℃.

Protocol

1. Reagents and Equipment Required

Magnetic separator (magnetic rack) and vortex mixer.
Freshly prepared 80%(V/V) ethanol and 10 mM Tris-HCl (pH 8.0) or ultrapure water.

2. DNA Purification

Note: A DNA sample volume of at least 50 μL is recommended. Smaller volumes may reduce pipetting accuracy and affect the accuracy of size selection.

2.1. Remove the bead suspension from 2-8℃ storage 30 min in advance and allow it to equilibrate to room temperature.

2.2. Mix the bead suspension thoroughly by inversion or vortexing. Add an appropriate volume of bead suspension for the first selection (see Table 2) to the DNA sample. Mix by pipetting 10 times or vortexing for 30 s, then incubate at room temperature for 5 min to allow DNA to bind to the beads.

2.3. Place the sample on a magnetic rack. After the solution becomes clear, carefully transfer the supernatant to a new nuclease-free centrifuge tube. Add an appropriate volume of bead suspension for the second selection (see Table 2). Mix by pipetting 10 times or vortexing for 30 s, then incubate at room temperature for 5 min to allow DNA to bind to the beads.

2.4. Place the sample on the magnetic rack again. Once the solution becomes clear, carefully remove the supernatant. Keeping the sample on the magnetic rack, add 200 μL of freshly prepared 80% ethanol to wash the beads. Let stand at room temperature for 30 s, then remove the supernatant with a pipette.

2.5. Repeat step 2.4 once for a total of two washes. After the second wash, remove as much residual wash solution as possible.

2.6. Keep the sample on the magnetic rack and air-dry the beads with the lid open at room temperature for about 3-5 min until the bead surface is no longer glossy. Cracking indicates over-drying.

2.7. Remove the sample from the magnetic rack. Add an appropriate volume of 10 mM Tris-HCl (pH 8.0) or ultrapure water, vortex to mix, and incubate at room temperature for 2 min.

2.8. Place the sample on the magnetic rack until the solution becomes clear. Transfer the supernatant to a new centrifuge tube. The DNA can be used directly for downstream applications or stored at -20℃for long-term preservation.

Table 1. Recommended DNA Purification Conditions

Target fragment size range	Recommended bead ratio
>1 kb	0.5×
>500 bp	0.7×
>400 bp	0.8×
>300 bp	1.0×
>200 bp	1.2×
>100 bp	1.5-2.2×

Note: Bead volume = sample volume × ratio; for example, 50 μL sample × 0.6 = 30 μL bead suspension.

3. DNA Size Selection

Perform DNA size selection according to steps 2.1-2.8, using the first and second purification ratios in Table 2 for the desired fragment range.

Table 2. Recommended DNA Size Selection Conditions

Selected fragment size range	100-200 bp	200-300 bp	300-400 bp	400-500 bp	400-700 bp
First purification ratio	1.0×	0.7×	0.6×	0.5×	0.45×
Second purification ratio	0.3×	0.2×	0.2×	0.15×	0.15×

Note: Bead volume = sample volume × ratio; for example, for a 50 μL sample, the first purification uses 50 μL × 1.0 = 50 μL bead suspension, and the second purification uses 50 μL × 0.3 = 15 μL bead suspension.

Notes

1. For Research Use Only. Not for use in diagnostic procedures.
2. Do not freeze.
3. Remove the beads from 2-8℃ storage about 30 min in advance and allow them to equilibrate to room temperature to ensure DNA recovery.
4. Mix thoroughly by vortexing or repeated inversion before use.
5. During washing with 80% ethanol, keep the sample tube on the magnetic rack and do not disturb the beads. During air-drying, avoid over-drying. If cracks appear on the bead pellet, the beads are over-dried and DNA elution efficiency may decrease.
6. When analyzing libraries with the Agilent 2100 Bioanalyzer, trailing peaks may occasionally be observed. This is usually caused by trace bead carryover in the purified PCR products. During the final supernatant transfer, use a magnetic rack with strong magnetic force and work carefully to avoid disturbing the beads.