

## Size Selection Beads

Product #76600

## Product Insert

### Description:

Norgen's Size Selection Magnetic Beads are designed for the separation and purification of DNA based on size in laboratory research applications. These beads are based on SPRI (Solid Phase Reversible Immobilization) technology and provide an efficient and reproducible method for isolating DNA fragments from enzymatic reaction buffers. Size selection magnetic beads are optimized to minimize the loss of important genetic data while improving recovery, consistency, and throughput across the NGS workflow. High-quality results are ensured by the magnetic microspheres effective capture of the targeted DNA fragments and simultaneous removal of excess primers, dNTPs, salts, enzymes, and other impurities, while offering consistent recovery and reproducible size selection.

### Product Components

Component	Product #76600
Size Selection Beads	5 mL
Product Insert	1

### Storage and Stability

Norgen's Size Selection Beads should be stored at 2–8 °C. Do not freeze. The product is stable for up to 1 year following shipment when stored properly. Before use, allow the beads to equilibrate to room temperature for 30 minutes and vortex thoroughly to ensure complete resuspension.

### Precautions and Disclaimers

This reagent is designed for research purposes only. It is not intended for human or diagnostic use. Ensure that a suitable lab coat, disposable gloves and protective goggles are worn when working with chemicals. For more information, please consult the appropriate Safety Data Sheets (MSDSs). These are available as convenient PDF files online at [www.norgenbiotek.com](http://www.norgenbiotek.com).

**Note:** *Norgen's Size Selection Beads are compatible with Norgen's 16S and ITS Library Preparation Kit for Illumina.*

### Required Materials (Not Provided)

- Freshly prepared 80% ethanol
- Nuclease-free water or low-salt elution buffer (e.g., 10 mM Tris-HCl, pH 8.5)
- Magnetic stand
- Microcentrifuge tubes

### General DNA Cleanup Protocol

1. Allow magnetic beads to equilibrate to room temperature for 30 minutes (18–25 °C) and vortex thoroughly until completely resuspended.
2. Add the appropriate volume of beads to the DNA sample according to the recommended bead-to-sample ratio shown in **Table 1**.
3. Mix thoroughly by pipetting or brief vortexing to ensure homogeneous binding conditions.
4. Incubate at room temperature for 5 minutes to facilitate DNA adsorption onto the beads.
5. Place the tube on a magnetic separation stand for 2–5 minutes, or until the solution becomes clear and the beads are fully immobilized.
6. Carefully remove and discard the supernatant without disturbing the magnetic bead pellet.

7. Keeping the tube on the magnetic stand, wash the beads twice with 200  $\mu$ L of freshly prepared 80% ethanol, ensuring complete removal of ethanol after each wash.
8. Air-dry the beads on the magnetic stand for 3–5 minutes; avoid over-drying, as excessive drying may decrease elution efficiency and reduce DNA recovery.
9. Remove the tube from the magnetic stand and add 20–50  $\mu$ L of nuclease free water or low-salt elution (e.g. 10 mM Tris-HCl, pH 8.5) buffer directly to the bead pellet.
10. Resuspend thoroughly and incubate at room temperature for 2 minutes.
11. Return the tube to the magnetic stand until the solution clears, then carefully transfer the eluate containing purified DNA to a new nuclease-free tube.

**Table 1: Recommended Bead Ratios for DNA Size Selection and Cleanup**

Bead Ratio (v/v)	DNA Fragments Retained	Typical Use Case
<b>0.5x</b>	$\geq 600$ bp	Removal of small fragments and primer-dimer
<b>0.6x</b>	$\geq 500$ bp	Large amplicon enrichment
<b>0.7x</b>	$\geq 400$ bp	Standard NGS library cleanup
<b>0.8x</b>	$\geq 300$ bp	PCR product purification
<b>0.9x</b>	$\geq 250$ bp	Broad size retention
<b>1.0x</b>	$\geq 200$ bp	High-yield DNA cleanup
<b>1.2x</b>	$\geq 150$ bp	Short fragment retention
<b>1.8x</b>	$\geq 100$ bp (total DNA)	Maximum recovery

**Performance Characteristics**

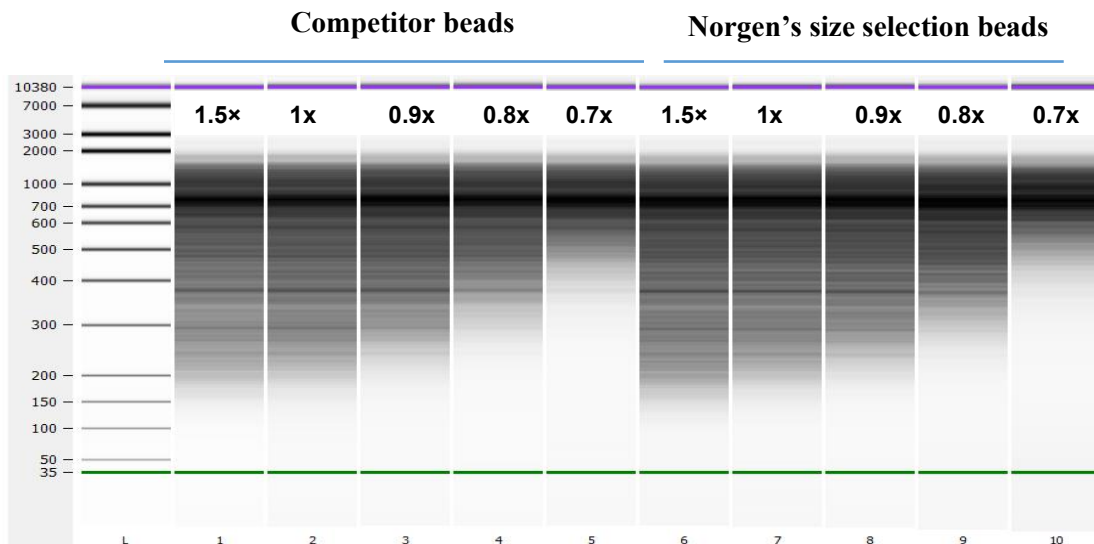
High DNA recovery (>80%)

Compatible with downstream applications including PCR, qPCR, and NGS

Minimal carryover of contaminants

**DNA size selection Example**

Choose the ratio of DNA beads before purification using the following figure as a guide



## Troubleshooting Guide

Problem	Possible Cause	Solution and Explanation
Low DNA recovery	Insufficient bead volume used.	Verify the recommended bead: sample ratio for the desired fragment cutoff. Using too few beads reduces DNA binding efficiency
	Beads were not fully resuspended before use	Vortex thoroughly before use to ensure a homogeneous suspension
	Ethanol carryover during elution	Carefully remove all ethanol after wash steps. Air dry beads for 5–10 minutes, avoiding over-drying
Poor size selection	Incorrect bead ratio used	Confirm the appropriate bead ratio for left-side or right-side size selection. Adjust ratio according to the fragment size target
	Over-drying of beads	Do not over-dry beads; over-drying may reduce recovery and affect size selection
Beads difficult to resuspend.	Beads over-dried or improperly stored.	Store at 2–8°C (do not freeze). Vortex thoroughly before use

Related Products	Product #
16S V3-V4 Library Preparation Kit for Illumina	70400

### Technical Support

Contact our Technical Support Team between the hours of 9:00 and 5:30 (Eastern Standard Time) at (905) 227-8848 or Toll Free at 1-866-667-4362.

Technical support can also be obtained from our website ([www.norgenbiotek.com](http://www.norgenbiotek.com)) or through email at [techsupport@norgenbiotek.com](mailto:techsupport@norgenbiotek.com).

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