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DNA Purification Magbeads (for NGS Size Selection)

Product Number: MB17

Shipping and Storage

2~8℃, do not freeze, 2 years.

Components

Component	MB17-5ml	MB17-50ml	MB17-500ml
NGS bead	5mL	50mL	500mL

Description

The DNA Purification Magbeads (for NGS Size Selection), based on SPRI (Solid Phase Reversible Immobilization) technology, and provides a fast and reproducible method for isolating DNA fragments from enzymatic reaction buffer. The NGS bead can effectively bind enough DNA fragments, and remove the excess primer, dNTP, salts, enzymes, etc. The NGS bead are applied for DNA fragments purified and selected for PCR, Sequencing, NGS library construction, etc. The DNA fragments of different sizes is purified and selected by adjusting the volume ratio of the NGS bead to the sample.

Required Materials

1. 0.2-mL PCR tubes
2. Magnetic rack
3. Microcentrifuge
4. Vortex mixer
5. Freshly prepared 75% ethanol
6. Nuclease-free Water

Protocol

1. DNA purification

1.1. Add the indicated volume of NGS bead reagent to the sample, pipet up and down five times or vortex for 10 seconds to thoroughly mix the bead suspension with the DNA, then incubate at room temperature for 5 minutes.

Fragment size range	Volume of NGS bead reagent
100bp and longer	2.2×-3.0×sample volume
150bp and longer	1.5×sample volume
200bp and longer	1.2×sample volume
250bp and longer	1.0×sample volume
1kbp and longer	0.5×sample volume

1.2. Pulse-centrifuge and place the sample tube in a magnetic rack for 5 minutes or until the solution clears. Remove and discard the supernatant without disturbing the bead pellet.

1.3. Without removing the tube from the magnet, dispense 200μL of freshly prepared 75% ethanol to the sample.

1.4. Incubate for 2 minutes, turning the tube around twice in the magnet to move the beads around. After the solution clears, remove and discard the supernatant without disturbing the pellet.

1.5. Repeat steps 3 and 4 for a second wash.

1.6. To remove residual ethanol, pulse-centrifuge the tube, place it back in the magnetic rack, and carefully remove any remaining supernatant with a 20-μL pipettor without disturbing the pellet.

1.7. Keeping the tube on the magnet, air-dry the beads at room temperature for 4-5 minutes.

Note:Ensure that the pellet does not dry out completely

1.8. Remove the tube from the magnet and add 25μL of Nuclease-free Water to the sample. Pipet the mixture up and down five times, then vortex the sample for 10 seconds to mix thoroughly.

1.9. Pulse-centrifuge and place the tube in the magnetic rack for at least 2 minutes. After the solution clears, transfer the supernatant containing the eluted DNA to a new tube without disturbing the pellet.

2. Double-sided size selection

2.1. Add the indicated first volume of NGS bead reagent to the sample, pipet up and down five times or vortex for 10 seconds to thoroughly mix the bead suspension with the DNA, then incubate at room temperature for 5 minutes.

Target median fragment size	First volume of NGS bead reagent	Second volume of NGS bead reagent
200-280bp	0.80×sample volume	0.20×sample volume
280-350bp	0.70×sample volume	0.20×sample volume
350-450bp	0.60×sample volume	0.20×sample volume
450-550bp	0.55×sample volume	0.15×sample volume
550-600bp	0.50×sample volume	0.15×sample volume
600-700bp	0.45×sample volume	0.15×sample volume

2.2. Pulse-centrifuge and place the sample tube in a magnetic rack for 5 minutes or until the solution clears. Transfer the supernatant containing the smaller fragments to a clean tube.

2.3. Add the indicated second volume of NGS bead Reagent to the sample, pipet up and down five times or vortex for 10 seconds to thoroughly mix the bead suspension with the DNA, then incubate at room temperature for 5 minutes.

2.4. Pulse-centrifuge and place the sample tube in a magnetic rack for 5 minutes or until the solution clears. Remove and discard the supernatant without disturbing the bead pellet.

2.5. Without removing the tube from the magnet, dispense 200μL of freshly prepared 75% ethanol to the sample.

2.6. Incubate for 2 minutes, turning the tube around twice in the magnet to move the beads around. After the solution clears, remove and discard the supernatant without disturbing the pellet.

2.7. Repeat steps 5 and 6 for a second wash.

2.8. To remove residual ethanol, pulse-centrifuge the tube, place it back in the magnetic rack, and carefully remove any remaining supernatant with a 20-μL pipettor without disturbing the pellet.

2.9. Keeping the tube on the magnet, air-dry the beads at room temperature for 2-3 minutes.

Note:Ensure that the pellet does not dry out completely.

2.10. Remove the tube from the magnet and add 25μL of Nuclease-free Water to the sample. Pipet the mixture up and down five times, then vortex the sample for 10 seconds to mix thoroughly.

2.11. Pulse-centrifuge and place the tube in the magnetic rack for at least 2 minutes. After the solution clears, transfer the supernatant containing the eluted DNA to a new tube without disturbing the pellet.

Limited Product Warranty

1. Resuspend the NGS bead reagent and allow thesuspension to come to room temperature (-30 minutes).
2. Use freshly prepared 75% ethanol for the next steps.
3. It is recommended to use a good quality pipette tip and reaction tube to avoid losses caused by adhesion.
4. This product is for research use only.
5. All information above is provided for guidance and reference purposes only.

DNA Purification Test Results

To evaluate the method, we used the purification process. Using 50bp DNA Ladder samples, we tested different purification ratios for each sample in PCR Tubes. Fragment sizes were analyzed using a Qsep™1 instrument (results show in Figure 1).

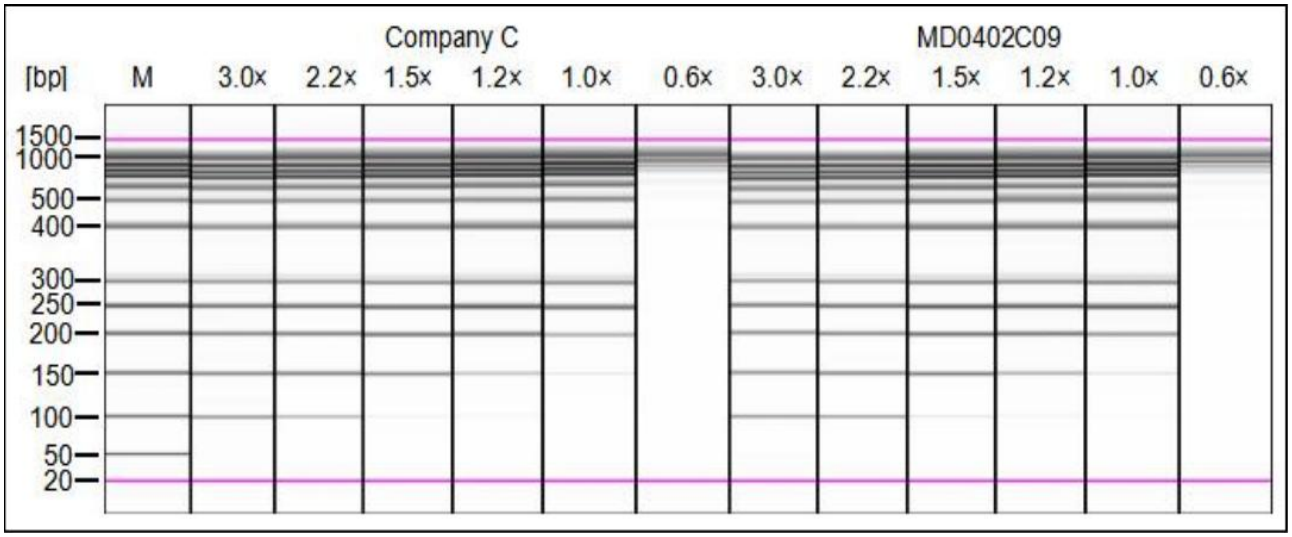

Figure 1.Qsep™1 High Resolution Cartridge Kit (S1) DNA gel view

DNA Double Size Selection Test Results

To evaluate the method, we used the "Double" process. Using sheared DNA samples, we tested different size selection ratios for each sample in PCR Tubes. Fragment sizes were analyzed using a Qsep™1 instrument (results show in Figure 2).

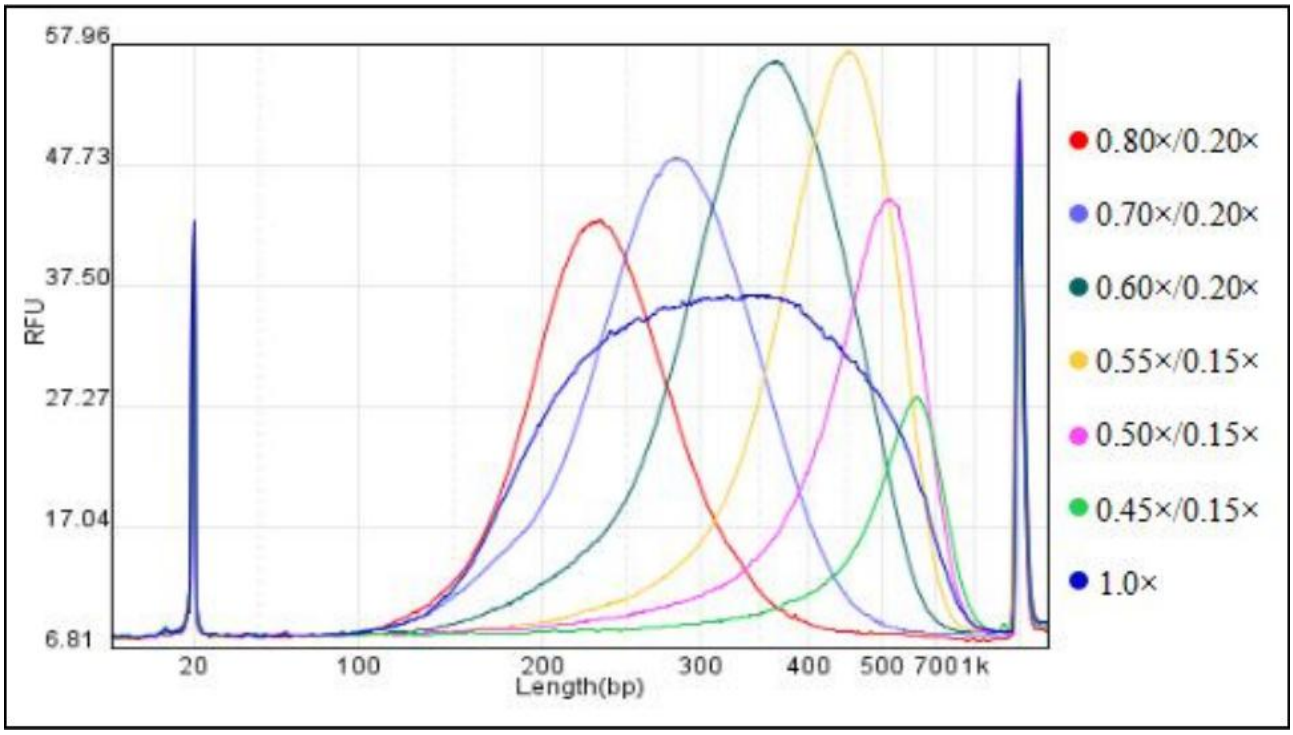

Figure 2.Qsep™1 High Resolution Cartridge Kit (S1) DNA signal chart