【Product Name】MagSelect Beads

【Product specifications】5ml, 50ml, 500ml

【Intended Use】

This Product speeds and simplifies nucleic acid size selection for fragment library preparation for Next Generation sequencing.

【Principle】

The MagSelect Beads method contains magnetic particles in an optimized binding buffer to selectively bind DNA fragments 100bp and larger to paramagnetic beads. Excess primers, nucleotides, salts, and enzymes can be removed using a simple washing procedure. The result is a more purified PCR product.

【Main Composition】

Cat.No.	XP-5	XP5-0	XP-500
MagSelect Beads	5 ml	50 ml	500 ml

【Storage conditions and Validity】

MagSelect Beads should be stored at 2–8°C upon arrival and is stable up to 18 months under the condition. However, short-term storage (up to 12 weeks) at room temperature (15–25°C) does not affect its performance. Shake the reagent well before use. It should appear homogenous and consistent in color. DO NOT FREEZE.

【Preparation before Use】

- Elution Buffer: Reagent grade water, 0.1 mM EDTA (pH 8.0), or 0.5 mM EDTA (pH 8.0). The optimal elution buffer will vary depending on dye chemistry and reaction conditions.
- magnetic plate
- For 96 well format: Fresh 85% Ethanol made with Non-denatured Ethanol.
- Samples should be fragmented double-stranded DNA.
- Samples should be dissolved in molecular biology grade water or Tris Buffer or TE.
- Sample volume should be ⩾ 50μL. A lower volume will decrease pipetting accuracy of SPRIselect, therefore increasing selection point variability.

[Left Side Size Selection]

1. Determine whether or not a plate transfer is necessary.
2. **Thoroughly shake the Magselect Beads bottle to resuspend the beads. Following the trend depicted in Figure 1, add the required volume of SPRI select for the desired ratio to the sample.**

Sample Reaction Volume (μL)	MagSelect XP (μL)	High Recovery DNA Size(>80%)
50μL	20μL (0.4x)	1000bp
50μL	30μL (0.6x)	700bp
50μL	40μL(0.8x)	400bp
50μL	50μL(1.0x)	350bp
50μL	50μL(1.2x)	250 bp

3. Mix the total reaction volume by pipetting 10 times and incubate at RT for 1 minute OR vortex for 1 minute at an appropriate speed until homogenous (depending on labware and total volume).
Pipette mixing is preferable to vortexing as it tends to be more reproducible. The color of the mixture should appear homogenous after mixing.
4. **Place the reaction plate onto an Magnet Plate for 5~10 minutes to separate beads from the solution.**
Settle times will vary; a higher initial sample volume, higher Magselect ratio or weaker magnets will require a longer settle time.
5. Aspirate the cleared solution from the reaction plate and discard. Leave 5 μL of supernatant behind, otherwise beads are drawn out with the supernatant.
This step must be performed while the reaction plate is situated on the Magnet Plate. Do not disturb magnetic beads.
6. **Dispense 200μL of 85% ethanol to each well of the reaction plate and incubate for 30 seconds at room temperature. Aspirate out the ethanol and discard.**
The beads are not drawn out easily when in alcohol, so it is not necessary to leave any supernatant behind.
7. **Dispense 200μL of 70% ethanol to each well of the reaction plate and incubate for 30 seconds at room temperature. Aspirate out the ethanol and discard.**
8. **Let the reaction air-dry for 5~10 minutes at room temperature.**
9. **Remove the reaction plate from the magnet plate, and then add 20 μL of elution buffer to each well of the reaction plate and pipette mix 10 times. Incubate for 2 minutes.**
The liquid level will be high enough to contact the magnetic beads at a 40μL elution volume. A greater

volume of elution buffer can be used, but using less than 40 µL will require extra mixing (to ensure the liquid comes into contact with the beads), and may not be sufficient to elute the entire PCR product.

10. Place the reaction plate onto an Magnet Plate for 1 minute to separate beads from the solution. Transfer the eluate to a new plate.

[Right Side Size Selection]

1. Determine whether or not a plate transfer is necessary.
2. Thoroughly shake the Magselect Beads bottle to resuspend the beads. Add the required volume of SPRIselect for the desired ratio to the sample.
3. Mix the total reaction volume by pipetting 10 times and incubate at RT for 1 minute OR vortex for 1 minute at an appropriate speed until homogenous (depending on labware and total volume).
   The color of the mixture should appear homogenous after mixing.
4. Place the reaction plate onto an Magnet Plate for 5~10 minutes to separate beads from the solution. Settle times will vary; a higher initial sample volume, higher Magselect ratio or weaker magnets will require a longer settle time.
5. Transfer the clear supernatant to a new reaction vessel. Add the required volume of Magselect Beads to the supernatant. This will bind the fragments in the supernatant to the new SPRI beads.
6. Mix the total reaction volume by pipetting 10 times and incubate at RT for 1 minute OR vortex for 1 minute at an appropriate speed until homogenous.
7. Place the reaction plate onto an Magnet Plate for 5~10 minutes to separate beads from the solution. Remove and discard the clear supernatant.
8. Dispense 200µL of 85% ethanol to each well of the reaction plate and incubate for 30 seconds at room temperature. Aspirate out the ethanol and discard.
9. Dispense 200µL of 70% ethanol to each well of the reaction plate and incubate for 30 seconds at room temperature. Aspirate out the ethanol and discard.
10. Let the reaction air-dry for 5~10 minutes at room temperature.
11. Remove the reaction plate from the magnet plate, and then add 20 µL of elution buffer to each well of the reaction plate and pipette mix 10 times. Incubate for 2 minutes.
    The liquid level will be high enough to contact the magnetic beads at a 40µL elution volume. A greater volume of elution buffer can be used, but using less than 40 µL will require extra mixing (to ensure the liquid comes into contact with the beads), and may not be sufficient to elute the entire PCR product.
12. Place the reaction plate onto an Magnet Plate for 1 minute to separate beads from the solution. Transfer the eluate to a new plate.