Apostle MiniEnrich™ Purification Beads Manual

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Product description

The Apostle MiniEnrich™ Purification Beads is designed for purification and clean-up of DNA fragments from the contaminants in NGS and molecular biology workflows. It can be used on samples after DNA isolation, fragmentation, PCR amplification, cloning, library preparation, etc. With proprietary Apostle MiniEnrich™ technology, the kit is featured for its efficient removal of contaminants and recovery of DNA fragments of interest.

Storage condition

Apostle MiniEnrich™ Purification Beads should be brown solution. Upon arrival, store at 2-8 °C. Equilibrate to room temperature and vortex to fully resuspend the beads before use.

Required materials not supplied

Adjustable micropipettes (1 mL, 200 uL, 20 uL) and tips
Magnets specifically designed for 2 mL tubes
Nonstick, DNase/RNase-free tubes
Vortex
Ethanol, 200 proof
Ultrapure DNase/RNase free water

Procedure for Purification

This protocol provides a guideline to perform DNA purification during NGS library preparation or after enzymatic reactions. Commonly seen contaminants such as excessive dNTP, oligos, primers (~20bp), primer dimers (~40 bp), adaptor (~50-60 bp), adaptor dimers (~110-120 bp), salts and enzymes can be removed after the purification.

In this protocol, the volume ratio of beads to sample is set to be 1.2x, which removes excessive fragments less than 120 bp in samples; while the samples could have other components that affects this removal cut-off size. As a general rule, lower volume ratio can decrease the binding of small fragments on the beads. Users can modify the volume ratio for specific samples and applications. For example, if the sample contains high percentage of PEG or salts, user can decrease the ratio of beads to remove contaminants less than 120 bp.

1. Before use, equilibrate Apostle MiniEnrich™ Purification Beads to room temperature and vortex to fully resuspend the beads.

2. Add Purification Beads to the samples based on the sample volume. The volume of beads for a given reaction can be derived from the following equation:

   $$Volume\ of\ beads = 1.2^{*} \times Sample\ Volume.$$

*Note: User can modify the ratio of beads for specific samples and applications.

Sample Volume	20 uL	40 uL	100 uL	200 uL
Beads Volume	24 uL	48 uL	120 uL	240 uL

3. Vortex the mixture for 5 seconds, and incubate the mixture at room temperature for 5 minutes.

4. Briefly centrifuge the tube to bring solution to the bottom. Place the tube on magnet for 3 min, or until the solution clears and the beads are pelleted against the magnet.

5. Carefully remove the supernatant.

6. Remove the 1.5 mL tube from the magnet, add 500 uL 70% ethanol (made by mixing pure ethanol with ultrapure & DNase/RNase free water, at 7:3 ratio), then vortex for 30 seconds.

7. Centrifuge the 1.5 mL tube using tabletop centrifuge briefly to bring solution to the bottom, place the 1.5 mL tube on magnet for 2 min, or until the solution clears and the nanoparticles are pelleted against the magnets.

8. Remove the supernatant carefully using pipette.

9. Repeat step 6-8 for a second wash.

10. Keep the 1.5 mL tube on the magnet, air dry the nanoparticles for 3 minutes. (When environment humidity is high, time can be longer to minimize the residual amount of ethanol, which will affect elution efficiency.)

11. Remove the 1.5 mL tube from the magnet, add desired amount of DNase/RNase free water to elute DNA.

Sample Volume	20 uL	40 uL	100 uL	200 uL
Suggested Elution Volume	20 uL	40 uL	100 uL	200 uL

12. Vortex the 1.5 mL tube to resuspend the magnetic nanoparticles in the solution, then incubate for another 5 minutes to elute DNA fragments from the nanoparticle.

13. Centrifuge the 1.5 mL tube using tabletop centrifuge briefly to bring solution to the bottom, place the 1.5 mL tube on a magnet, until the solution clears and the nanoparticles are pelleted against the magnets.

14. Collect the supernatant that contains purified DNA fragments in a non-stick, DNase and RNase free microcentrifuge tube. For long term storage, store the sample at -20 °C.