VAHTS DNA Clean Beads

N411

Version 24.1

Product Description

VAHTS DNA Clean Beads is a SPRI-based (Solid-Phase Reverse Immobilization) chemistry, compatible with DNA purification and size selection for fragment library preparation for Next Generation Sequencing. VAHTS DNA Clean Beads is suitable for all DNA/RNA library preparation protocols currently provided by manufacturers or published in academic journals. The usage of VAHTS DNA Clean Beads is similar to other suppliers. The yield and size distribution of the libraries prepared with VAHTS DNA Clean Beads are highly consistent with those suppliers.

Components

Components	N411-01	N411-02	N411-03
VAHTS DNA Clean Beads	5 ml	60 ml	450 ml

Storage

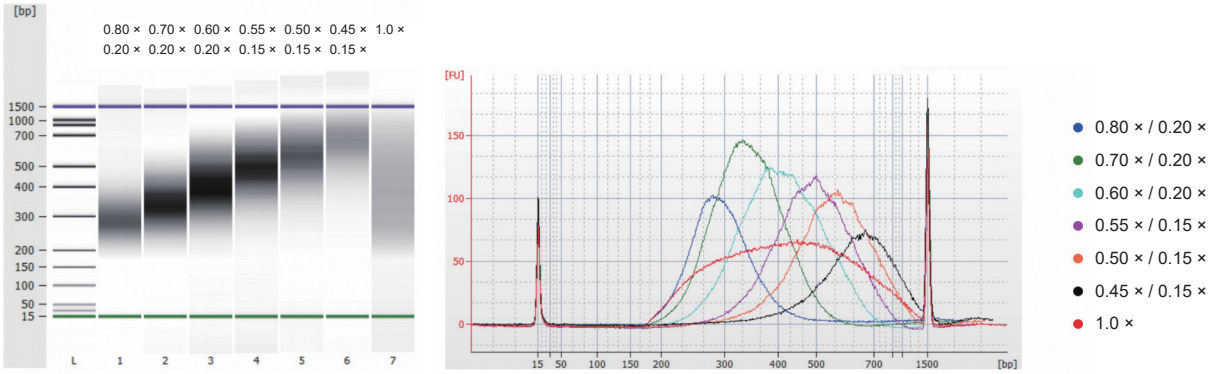
Store at 2 ~ 8°C and ship on ice pack.

Applications

It is applicable for DNA or RNA library preparation.

Notes

1. Keep the magnetic beads at room temperature for more than 30 min, which can ensure the recovery rate of DNA. Resuspend the beads by vortexing or inverting thoroughly before use.
2. When washing the beads with 80% ethanol, keep the tube on the magnetic rack without disturbing the magnetic beads. Avoid excessive drying of magnetic beads. If the magnetic beads appear cracked, it indicates that the magnetic beads are over dry, resulting in low elution efficiency of DNA.
3. When analyzing the fragment size with Agilent 2100 Bioanalyzer, sometimes the high molecular weight tailing is usually caused by the residue of magnetic beads in the products as shown in the figure below. It is recommended that use a magnetic rack with strong magnetic force and try to be careful to avoid stirring the magnetic beads when absorbing supernatant in the last step.



Experiment Process

DNA Purification

1. Take out the VAHTS DNA Clean Beads from 2 ~ 8°C and keep the reagent at room temperature for more than 30 min before use.
2. Mix the VAHTS DNA Clean Beads thoroughly by vortexing or inverting. Add VAHTS DNA Clean Beads according to the reaction volume in Table 1. Mix the VAHTS DNA Clean Beads and sample thoroughly by pipetting 10 times.
3. Incubate the tube at room temperature for 10 min to bind DNA.
4. Place the tube on the magnetic rack for about 5 min until the supernatant is clear, carefully discard the supernatant.
5. Keep the tube on the magnetic rack and wash the beads with 200 µl of freshly prepared 80% ethanol without disturbing the beads. Incubate at room temperature for 30 sec, carefully discard the supernatant.
6. Repeat step 5, wash twice in total.
7. Keep the tube always on the magnetic rack and air-dry the beads for 5 - 10 min.
8. Remove the tube from the magnetic rack and add appropriate Nuclease-free ddH_2O. Pipette or vortex to resuspend beads and incubate at room temperature for 2 min. Place the tube on the magnetic rack until the supernatant is clear (~ 5 min). Transfer the supernatant into a new PCR tube.

Table 1. Reference conditions for DNA purification

Fragment size range after purification	Reference ratio (Volume of Clean Beads = Ratio × Volume of Sample)
≥1 kb	0.5 ×
≥400 bp	1.0 ×
≥300 bp	1.2 ×
≥200 bp	1.5 ×
≥100 bp	2.2 × - 3.0 ×

DNA size selection

1. Take out the VAHTS DNA Clean Beads from 2 ~ 8°C and keep the reagent at room temperature for more than 30 min before use.
2. Mix the VAHTS DNA Clean Beads thoroughly by vortexing or inverting. Add VAHTS DNA Clean Beads according to the reaction volume of 1st round in Table 2. Mix the VAHTS DNA Clean Beads and sample thoroughly by pipetting 10 times.
3. Incubate the tube at room temperature for 10 min to bind DNA.
4. Place the tube on the magnetic rack for about 5 min until the supernatant is clear, carefully transfer the supernatant into a new PCR tube.
5. Add the reaction volume of 2nd round (Table 2) to the supernatant and pipette 10 times.
6. Incubate the tube at room temperature for 10 min.
7. Place the tube on the magnetic rack for about 5 min until the supernatant is clear, carefully discard the supernatant.
8. Keep the tube on the magnetic rack and wash the beads with 200 µl of freshly prepared 80% ethanol without disturbing the beads. Incubate at room temperature for 30 sec, carefully discard the supernatant.
9. Repeat step 8, wash twice in total.
10. Keep the tube always on the magnetic rack and air-dry the beads for 5 - 10 min.
11. Remove the tube from the magnetic rack and add appropriate Nuclease-free ddH_2O. Pipette or vortex to resuspend beads and incubate at room temperature for 2 min. Place the tube on the magnetic rack until the supernatant is clear (~ 5 min). Transfer the supernatant into a new PCR tube.

Table 2. Reference conditions for DNA size selection

Average length range of selected fragments (bp)	170 - 200	220 - 250	260 - 280	290 - 310	310 - 340	340 - 360	360 - 390
Volume ratio of 1st round (DNA Clean Beads : Initial Sample)	1	0.9	0.8	0.8	0.7	0.7	0.7
Volume ratio of 2nd round (DNA Clean Beads : Initial Sample)	0.3	0.2	0.2	0.15	0.2	0.15	0.1

Average length range of selected fragments (bp)	390 - 420	410 - 440	410 - 450	530 - 570	570 - 600	660 - 700
Volume ratio of 1st round (DNA Clean Beads : Initial Sample)	0.65	0.6	0.6	0.55	0.5	0.45
Volume ratio of 2nd round (DNA Clean Beads : Initial Sample)	0.1	0.15	0.1	0.1	0.15	0.15