MagVigen™ DNA Select Nanoparticles

Cat # 61001-300

Product Description

MagVigen™ DNA Select nanoparticles are ideal for DNA purification. MagVigen™ DNA Select nanoparticles feature efficient recovery of double-stranded and single-stranded DNA. DNA products are captured by MagVigen™ DNA Select nanoparticles following a short incubation. The generated nanoparticle-oligo complex can be separated from the rest of the sample by magnet. The retained genomic material can be eluted from the nanoparticles using an elution buffer.

MagVigen™ DNA Select nanoparticles enable the purification of DNA products from salts and other contaminants from assay samples, e.g. cell lysate. The purified DNA products can be further analyzed by gel electrophoresis, PCR quantification and sequencing.

Product Contents

- MagVigen™ DNA Select nanoparticles
- Elution Buffer

All materials should be stored at 4°C up to 6 months.

Materials Needed

- 80% ethanol
- Magnetic rack, Cat# A20006

Protocol

Before Start Your Experiment:

The amount of nanoparticles needed for efficient DNA separation depends on the DNA quantity in the starting sample.

Example: If the DNA-containing sample has no more than 1000ng DNA, then use 40ul (80ug) of MagVigen™ DNA Select nanoparticles for capture. Scale up accordingly if DNA quantity or sample volume increases.

DNA Capture

1. Remove MagVigen™ DNA Select nanoparticles from 4°C storage.
2. Vortex MagVigen™ DNA Select nanoparticles for 10 seconds before use.
3. Remove 40ul MagVigen™ DNA Select nanoparticles and put into a clean 1.5ml reaction tube.
4. Add 40ul DNA sample to MagVigen™ DNA Select nanoparticles.

   *Note: For every **40ul DNA sample**, mix with **40ul MagVigen™ DNA Select nanoparticles**. A volume ratio of 1:1 for DNA : MagVigen must be followed in order to separate DNA>=300bp.*
5. Vortex or pipette the reaction solution to mix thoroughly.

   Note: It is ideal not to introduce bubbles during the capture reaction.
6. Incubate the MagVigen™ DNA Select nanoparticles-DNA reaction at room temperature for 30 minutes.
7. After incubation, use the magnet to separate the DNA-captured nanoparticles from the solution.
8. Carefully remove the supernatant with a pipette, taking care not to disturb the DNA-captured nanoparticle pellet.
9. Keeping the magnet in place, wash the DNA-captured nanoparticle pellet by adding 100ul freshly prepared 80% ethanol. Let stand for 2 minutes.

   Note: Adjust the volume of ethanol as needed to sufficiently cover the DNA-captured nanoparticle pellet.
10. Remove and discard the ethanol.
11. Repeat steps 11-12, performing a total of two washes.
12. Allow the sample to air dry at room temperature for 5 minutes.

    Note: Do not to allow pellet to over-dry and crack. This could affect the recovery.

DNA Elution

13. Elute the captured DNA from the nanoparticles by adding 20ul of the Elution Buffer.

    Note: The volume of the Elution Buffer can be adjusted as needed.
14. Gently pipette to mix well and incubate for 5 minute at room temperature.

    Note: It is ideal not to introduce bubbles during the elution reaction.
15. Separate the nanoparticles from the eluted DNA with magnet.
16. Transfer the supernatant containing the DNA products to a clean tube. The purified DNA is ready to use for subsequent evaluation.

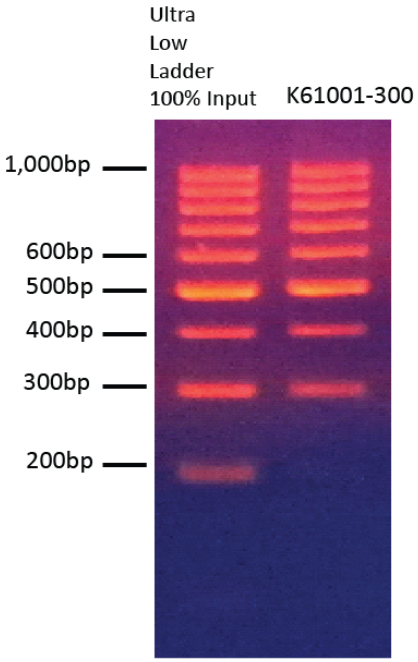

Figure 1. 1000ng 100~1,000bp DNA Ladder was extracted with MagVigen DNA Size Selection kit K61001, following a standard protocol. The resulting DNA was analyzed on a 3% agarose gel.

Troubleshooting FAQ:

Q1: Why I still see a lot of small MW DNA in my sample?

A1: K61001-300 is designed to remove <300bp DNA from samples. However, when DNA<300bp is over 400ng per 40ul sample, please dilute the DNA sample to total DNA~1,000ng and <300bp~400ng per 40ul. This is particular important when trying to remove adaptors that is overdosed in the ligation process.

Q2: The cutoff is not clean in my sample.

A2: First make sure the total DNA smaller than 300bp is <400ng per 40ul sample. Overloading MagVigen nanoparticles with DNA will result in carryover of small DNA. If problem persists, you may slightly decrease MagVigen volume to 36ul per 40ul DNA sample, this helps reducing carryover of small DNA.

Q3: The yield is low.

A3: Increase DNA-MagVigen mixture incubation time to 1 hour will significantly improve the yield.