MagVigen™ - Streptavidin DNA Capture

Cat # 61002

Product Description

MagVigen™ Streptavidin DNA Capture nanoparticles can be used to capture specific RNA or DNA sequences directly from solution. The nanoparticles can bind to any biotinylated DNA through high affinity interaction between streptavidin and biotin. MagVigen™ Streptavidin DNA Capture nanoparticles feature efficient recovery of double-stranded and single-stranded DNA. DNA products are captured by the 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™ Streptavidin DNA Capture nanoparticles enable the purification of DNA products from salts and other contaminants from assay samples, e.g. cell lysate, whole blood. The purified DNA products can be further analyzed by gel electrophoresis, PCR quantification and sequencing.

Product Contents

- MagVigen™ Streptavidin DNA Capture nanoparticles
- Blocking Solution
- Capture Solution
- Wash Buffer

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

Protocol

DNA Purification

This protocol was optimized for purification of biotinylated DNA sample from assay samples, e.g. cell lysate, whole blood.

DNA Capture

1. Remove MagVigen™-Streptavidin nanoparticles from storage and bring them to room temperature.
2. Vortex MagVigen™-Streptavidin nanoparticles for 10-20 seconds before use.

Use 20ul of MagVigen™-Streptavidin nanoparticles for 1-10 picolmole of biotinylated DNA.

3. Remove MagVigen™-Streptavidin nanoparticles and put into a clean 1.5ml reaction tube.
4. Collect MagVigen™ -Streptavidin nanoparticles using magnet and remove the supernatant.

   Note: A clear precipitate containing dark brown colored nanoparticles should become visible on the side of the micro-centrifuge tube.
5. Resuspend the nanoparticles in 4X volume of Blocking Solution and incubate at RT for 10min.
6. Collect MagVigen™ -Streptavidin nanoparticles using magnet and remove the supernatant.
7. Resuspend the nanoparticles in 1x volume of Capture Solution.
8. Add DNA sample to MagVigen™-Streptavidin nanoparticles.
9. Gently pipette the reaction solution to mix thoroughly.

   Note: It is ideal not to introduce bubbles during the capture reaction.
10. Incubate the MagVigen™-Streptavidin nanoparticles-DNA reaction at room temperature, rocking for 30 minutes to 1 hour.
11. After incubation, use the magnet to separate the DNA-captured nanoparticles from the solution.
12. Carefully remove the supernatant with a pipette, taking care not to disturb the DNA-captured nanoparticle pellet.
13. Wash the DNA-captured nanoparticle pellet by resuspending nanoparticles in 10x volume of wash buffer and incubating at 55^{o}C for 2min.
14. Collect MagVigen™ -Streptavidin nanoparticles using magnet and remove the supernatant.
15. Repeat steps 13-14, performing a total of three washes.

    Note: The washing step may be repeated more than three times if nonspecific capture is detected.
16. Resuspend nanoparticles in 4x volume of H_2O and DNA can be eluted by incubating at 95^{o}C for 10min.

    Note: The volume of H_2O in elution can be adjusted as needed.
17. Separate the nanoparticles from the eluted DNA with magnet.
18. Transfer the supernatant containing the DNA products to a clean tube. The purified DNA is ready to use for subsequent evaluation.