BeaverBeads™ Circulating DNA Extraction Kit

Product Introduction

BeaverBeads™ Circulating DNA Kit is using superparamagnetic microspheres and pre-made buffers to extract circulating DNA from 0.2~5 ml serum or plasma in a fast and efficient way. The quality of the extracted products is stable and reliable, and can be used for PCR amplification, sequencing and detection.

Product Information

Product Name	BeaverBeads™ Circulating DNA Extraction Kit
BeaverBeads™ ①	stored at 2 ~ 8 ℃, avoid freezing
Lysis Buffer ②	15~25℃ sealed storage, if seeing precipitation, incubate 2mins at 37℃
Washing Buffer ③	15~25℃ sealed storage
Elution Buffer ④	15~25℃ sealed storage
Proteinase K ⑤	store at 2~8 ℃ for 6 months, or store at -20℃ for a long time after re-packing
Solution A ⑥	15~25℃ sealed storage, used to dissolve protease K
Isopropanol (AR)	self-prepared by users
75%(v/v) Ethanol	self-prepared by users and can't be stored for more than 2 days
Shelf Life	12 months

Preparation (take 1 mL sample as an example)

- EP tube (1.5 mL centrifuge tube, 15 mL centrifuge tube: one /sample)
- Single channel pipettes: 200 μL, 1000 μL
- Vortex oscillator
- Dry bath (or water bath) incubator: 55 ℃, can choose BEAVER dry bath incubator, Product No.: 2018C
- Magnetic separator: can choose BEAVER magnetic separator, Product No. 60201
- Isopropanol (AR): 0.5 mL/sample
- 75%(v/v) Ethanol: 3.8 mL/sample

Before first use

- Add Proteinase K dry powder ⑤ into specified quantity (see bottle label) Solution A ⑥, and write "√" in "□", mix uniformity and store at 2~8 ℃ or store at -20℃ after re-packing.

Operation process

(Take the sample size of 1 mL, if sample size ≤ 5 mL, see table 1 for reference; if sample size > 5 mL, consult technician for help**)**

1. Lysis

Add 100μL Proteinase K ⑤ into 15 mL centrifuge tube, then in turn, add 1 mL plasma or serum sample and 800 μL Lysis Buffer ②, vortex oscillating, and then heat centrifuge tube for 10 mins at 55 ℃ (every 5 mins, vortex oscillating for 10s).

2. Mixing

Add 0.5 mL isopropanol into the above centrifuge tube, then vortex oscillating for 30 s, then add 100 μL BeaverBeads™ ①, vortex oscillating with the maximum rotational speed and then leave for 10 mins at room temperature. Put the centrifuge tube on the magnetic separator and stay for 20 seconds until magnetic beads are attracted completely, discard the supernatant and take out centrifuge tube from magnetic separator.

3. Cleaning

(1) Add 3 mL Washing Buffer ③ into the centrifuge tube, vortex oscillating 1 min, resuspend the superparamagnetic beads, then place the centrifuge tube into magnetic separator until the solution is clear, remove supernatant and remove centrifuge tube from magnetic separator;
(2) Add 3 mL 75%(v/v) Ethanol into the centrifuge tube, vortex oscillating 1 min, resuspend the superparamagnetic beads, then place the centrifuge tube into magnetic separator until the solution is clear, remove supernatant and remove centrifuge tube from magnetic separator;
(3) Add 800 μL 75%(v/v) Ethanol and transfer the solution into 1.5 mL centrifuge tube, vortex oscillating 1 min, resuspend the superparamagnetic beads, wait for a min under the room temperature, then place the centrifuge tube into magnetic separator until the solution is clear, remove solution from tube lid and bottom.
Note: for step (3) Use a small range pipettor to remove the washing buffer as much as possible

4. Drying

Keep the centrifuge tube on the magnetic separator, leave for 10 mins at room temperature, then take the centrifuge tube off the magnetic separator
Note: If there is liquid residue in the reaction tube during the drying process, using a small range pipettor to remove the liquid.

5. Elution

Add 50 μL pre-heated 55 ℃ Elution Buffer ④, vortex oscillate 1 min, or slowly blow the magnetic beads 50 times with a pipettor until magnetic beads are fully suspended, then heat at 55 ℃ for 5 minutes, then place the centrifuge tube in a magnetic separator until the solution is clear, remove supernatant to a new 1.5mL centrifuge tube, that the circulating DNA is obtained after purification, it can be stored at - 20 ℃.
Note: The elution volume of this product can be as low as 20μL, but attention should be paid that the elution efficiency is related to the elution volume, the more the elution volume, the more the total amount of the nucleic acid, but the lower the concentration.

Table 1: Relationship between reaction Tube specifications/reagent amount and the sample sizes

Sample size	600 μL	1 mL	2 mL	3 mL	4 mL	5 mL
Reaction Tube	15 mL	15 mL	15 mL	50 mL	50 mL	50 mL
Proteinase K	60 μL	100 μL	200 μL	300 μL	400 μL	500 μL
Plasma/Serum sample	600 μL	1 mL	2 mL	3 mL	4 mL	5 mL
Lysis Buffer	480 μL	800 μL	1.6 mL	2.4 mL	3.2 mL	4 mL
Isopropanol (AR)	300 μL	500 μL	1 mL	1.5 mL	2 mL	2.5 mL
BeaverBeadsTM	60 μL	100 μL	100 μL	150 μL	200 μL	300 μL
Washing Buffer	2 mL	3 mL	6 mL	9 mL	12 mL	15 mL
75% (v/v) Ethanol	2 mL	3 mL	6 mL	9 mL	12 mL	15 mL
75% (v/v) Ethanol	800 μL	800 μL	1 mL	1 mL	1 mL	1 mL
Elution Buffer	50 μL	50 μL	50 μL	50 μL	50 μL	50 μL

Note:

1. Be sure to read this product manual carefully before any operation.
2. The extraction effect is related to the sample quality, please avoid repeated freezing the samples.
3. Avoid freezing and centrifugation of magnetic beads.
4. The magnetic beads should be fully suspended before using.
5. Before drying the magnetic beads, please use the pipettor to absorb the washing liquid.
6. Avoid excessive drying of magnetic beads, otherwise the nucleic acid elution efficiency will be severely reduced.
7. Suggest using good quality of the centrifugal tube and the pipettor to avoid losses caused by adhesion of magnetic beads.

Product List

Cat No.	Product Name	Specification
70404-20	BeaverBeads™ Circulating DNA Kit	1 mL sample, 20rxns
70404-100		1 mL sample, 100rxns
70404L-10		4mL sample, 10rxns
70404L-50		4 mL sample, 50rxns

For support, please visit: www.beaverbio.com/support or email: Service@beaverbio.com