

ODP303

Marine DNA Kit

For isolation of genomic DNA from
marine animal tissues

 **origin[®]**



ISO 13485:2016 ISO 9001:2015

Marine DNA Kit

Spin Column
(ODP303)

Kit Contents

Contents	50 Preps
Buffer GS	10mL
Buffer GB	10mL
Buffer GD	13mL
Buffer PW	15mL
Buffer TE	10mL
Proteinase K (20mg/mL)	1mL
Spin column CB3	50
Collection Tubes (2mL)	50
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Storage

Marine DNA Kit could be stored dry at room temperature (15-25°C) for up to 12 months without showing any reduction in performance and quality. For longer term storage, the kit could be stored at 2-8°C.

(Note: Check buffers for precipitate before use and dissolve at 37°C for 10 minutes if necessary)

Proteinase K should be stored at -20°C

Introduction

Marine DNA Kit is based on silica membrane technology and special buffer system for many kinds of sample's genomic DNA extraction. The spin column made of new type silica membrane can bind DNA optimally on given salt and pH conditions. Simple centrifugation completely removes contaminants and enzyme inhibitors such as proteins and divalent cations. Extracted DNA is eluted in low-salt buffer or water, ready for use in downstream applications.

The genomic DNA isolated with this kit is of high quality and serves as an excellent template for agarose gel analysis, restriction enzyme digestion, PCR and blotting.

Yield

Samples	Suggested Incubation Time (for step 2)	DNA Yield
Shellfish	0.5 hour	12-20µg
Shrimp	1 hour	8-14µg
Fish	1 hour	15-40µg

Important Notes

1. Add appropriate amount of ethanol (96-100%) to Buffer GD and Buffer PW as indicated on the bottle before use.
2. All centrifugation steps are carried out at 17,900 ×g (13,000 rpm) in conventional tabletop microcentrifuge at room temperature.
3. Increasing the time of absorption and elution could improve recovery efficiency.
4. The recovery efficiency is related to starting DNA quantity and elution volume. The less starting quantity or elution volume, the less recovery efficiency.
5. If a precipitate has formed in Buffer GB or Buffer GD, warm buffer to 56°C until the precipitate has fully dissolved.
6. Repeated freezing and thawing of Proteinase K should be avoided; otherwise, it would reduce the DNA quality and quantity.

Protocol

Ensure that Buffer GD and Buffer PW have been prepared with appropriate volume of ethanol (96-100%) as indicated on the bottle and shake thoroughly.

1. Preparation of samples:
Cut up to 30mg tissue into small pieces and place in a 1.5mL microcentrifuge tube, add 200µL Buffer GS, vortex for 15 seconds.
Note: The sample from branchia is recommended not exceed 20mg.
Optional: RNase (Cat# ORT405-01) treatment of the sample. Add 4µL RNase A (100mg/mL), mix by vortex, and incubate for 5 minutes at room temperature (15-25°C).
2. Add 20µL Proteinase K, mix thoroughly by vortexing. Incubate at 56°C until the tissue is completely lysed.
Note: Lysis time varies depending on the type of tissue processed, usually will takes 0.5-2 hours. For shellfish tissue, lysis usually needs 0.5 hour; for fish and shrimp tissue, lysis usually needs 1 hour. Samples should be inverted 2-3 times every one hour, mix thoroughly by vortex for 15 seconds each time.

3. Add 200µL Buffer GB to the sample, mix thoroughly by vortexing, and incubate at 70°C for 10 minutes to yield a homogeneous solution. Briefly centrifuge the 1.5mL microcentrifuge tube at 1,000 - 3,000 rpm for 30 seconds to remove drops from the inside of the lid.

Note: Precipitates are expected, but it will not interfere with the extraction.

4. Add 200µL ethanol (96-100%) to the sample, and mix thoroughly by vortexing for 20 seconds. Briefly centrifuge the 1.5mL microcentrifuge tube at 1,000 - 3,000 rpm for 30 seconds to remove drops from the inside of the lid.

Note: Precipitate formed in the earlier step will be dissolved.

5. Pipette the mixture from step 4 into the spin column CB3 (in a 2mL collection tube) and incubate at room temperature for 5-10 minutes. Centrifuge at 12,000 rpm (~13,400 ×g) for 45 seconds and discard flow-through. Place the spin column into the collection tube.
6. Add 500µL Buffer GD to spin column CB3, and centrifuge at 12,000 rpm (~13,400 ×g) for 30 seconds, then discard the flow-through and place the spin column into the collection tube.
7. Add 700µL Buffer PW to spin column CB3, and centrifuge at 12,000 rpm (~13,400 ×g) for 30 seconds. Discard the flow-through and place the spin column into the collection tube.

8. Repeat step 7.

9. Centrifuge for 2 minutes at 12,000 rpm (~13,400 ×g) to remove residual wash Buffer PW. Discard the collection tube and transfer the spin column CB3 to a clean 1.5mL or 2mL microcentrifuge tube. Open the lid of the spin column CB3 and incubate the assembly at room temperature (15-25°C) for 2 minutes to dry membrane completely.

Note: Residual ethanol from Buffer PW may inhibit subsequent enzymatic reactions.

10. Pipette 50–200µL Buffer TE directly onto the membrane, incubate for 2-5 minutes at room temperature (15–25°C), and then centrifuge for 2 minutes at 12,000 rpm (~13,400 ×g) to elute.

Note: To increase the DNA yield, introduce the eluted Buffer TE to the column and centrifuge for 2 minutes at 12,000 rpm. If the volume of eluted buffer is less than 50µL, it may affect recovery efficiency. What's more, the pH value of eluted buffer will have some influence in elution, we suggest Buffer TE or distilled water (pH 7.0-8.5) to elute genomic DNA. For long-term storage of DNA, eluting in Buffer TE and storing at –20°C is recommended, since DNA stored in water is subject to acid hydrolysis.