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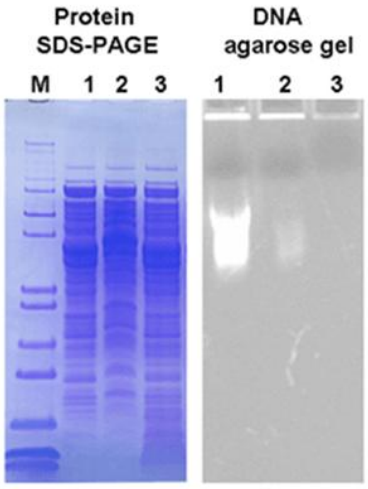
INSTRUCTIONS

ProFoldin
Nucleic Acid Removal Kit

Catalog Number **NAR911**

INTRODUCTION

Nucleic acids significantly interfere with protein purification and analysis in many aspects including cell lysis, chromatographic purification, protein quantification, activity assays and crystallization. The interference is more severe when the interested protein binds DNA or RNA of different sizes. The Nucleic Acid Removal Kit is designed to remove nucleic acids to a level below 250 pg / ml from a protein solution or cell lysate.



M: Protein MW marker

1: Cell lysate

2: Cell lysate treated with spermidine

3. Cell lysate treated with Nucleic Acid Removal kit

The Nucleic Acid Removal Kit (Catalog No. NAR911) contains 22 ml of NAR reagent 1 and 22 ml of Reagent 2. It is sufficient for treatment of 200 ml of cell lysate or protein solution.

PROTOCOLS

Remove Nucleic Acids during Cell Lysis

Cell lysis should be performed at 0 °C to 4 °C. Make sure all materials including the cell suspension, lysis buffer and NAR reagents are kept at 0 °C to 4 °C during the nucleic acid removal process.

(1) Mix one volume of NAR Reagent 1 with 9 volume of cell suspension.
(2) Break the cells.
(3) Remove the insoluble materials by centrifugation at 4 °C at 6000 x g for 20 min.

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(4) Add one volume of NAR Reagent 2 and incubate the mixture on ice for 5 min. Remove the precipitate by centrifugation at 4 °C at 6000 x g for 20 min.

Note: For small scale tests using an Eppendorf benchtop centrifuge, centrifugation at the maximum speed (13000 rpm) for 2 minutes is sufficient.

Remove Nucleic Acids from a Protein Solution

Make sure all materials including the protein solution and NAR reagents arte kept at 0 °C to 4 °C during the nucleic acid removal process.

(1) Mix one volume of NAR Reagent 1 with 9 volume of the protein solution. Incubate the mixture on ice for 10 min.
(2) Remove the precipitate by centrifugation at 4 °C at 6000 x g for 20 min.
(3) Add one volume of NAR Reagent 2 and incubate the mixture on ice for 5 min. Remove the precipitate by centrifugation at 4 °C at 6000 x g for 20 min.

Protein Purification after Nucleic Acid Removal

The NAR Reagent 1 and Reagent 2 are ionic polymers. The final solution contains 0.45 M NaCl. The NAR regents can be easily removed in the process of protein purification. If ion exchange chromatography is used to remove the NAR reagents, the protein solution is dialyzed against 50 volumes of a low salt buffer for 4 hr to remove the salt and loaded on the column. The loaded column is washed with 5 - 10 column volumes of the low salt buffer and the protein is eluted with a salt gradient. If a gel filtration or affinity column is used, the dialysis step is not required.

REFERENCE

Morrison K. D.et al, Unearthing the Antibacterial Mechanism of Medicinal Clay: A Geochemical Approach to Combating Antibiotic Resistance. Scientific reports, 6: 19043 (2016).

RELATED PRODUCTS

Protein and DNA Removal Spin-columns	Catalog number: PNR020
Micro Phosphate Removal Column Set	Catalog number: MPR020
Spin-columns for Liposome Purification	Catalog number: SLP20

For more information of protein science, biochemical assays, enzymatic assays and liposome science, please visit www.profoldin.com.