Benzonase

Cat: N3040
Specification: 25KU
Storage: Store at -20℃, and it is valid for 2 years. Avoid storage at -70°C.

Product Information
Purity: >99% (SDS-PAGE)
Enzyme Activity/Potency: 250U/μl
Introduction

Benzonase Nuclease is a highly purified recombinant nuclease expressed in Escherichia coli, also known as Universal Nuclease or Omnipotent Nuclease.

Product Features:

This enzyme is capable of degrading a wide range of DNA and RNA, including single-stranded, double-stranded, linear, and circular forms. Experimental results have shown its excellent efficacy in degrading fish sperm DNA, viral nucleic acids, and eukaryotic genomic DNA. The complete digestion products are oligonucleotide fragments of 2-5 bases, smaller than the hybridization limit. The enzyme remains active in the presence of 1-2mM Mg^{2+}, within a pH range of 6.0-10.0, and at temperatures between 0-42°C. Surface active agents and reducing agents do not affect its activity.

Product Applications:

1. Reducing solution viscosity during protein extraction processes.
2. Preparation of samples for two-dimensional gel electrophoresis.
3. Removal of residual nucleic acids from biological products.

Enzyme Activity Definition:

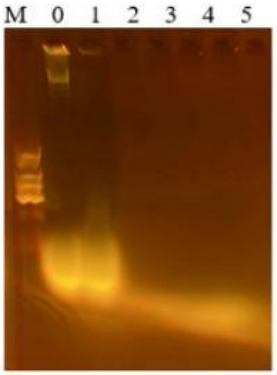
One unit of activity is defined as the amount of enzyme required to increase the absorbance at 260nm (A260) by 1.0 in 30 minutes at 37°C, which is equivalent to the amount of enzyme that completely digests 37 micrograms (μg) of DNA.

Recommended Enzyme Digestion Conditions:

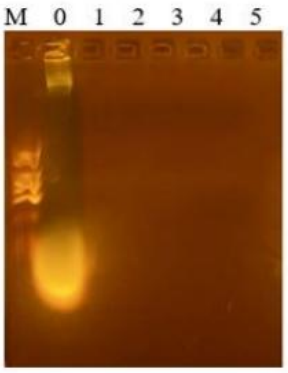
Enzyme Concentration:	2,000 U/L
pH Range:	7.0 to 8.5
Temperature:	37°C
Incubation Time:	1 to 2 hours

Reagent Durability:

Reagents	Experimental Results	Reagents	Experimental Results
DTT	≤500mM does not affect enzyme activity	$PO4^{3+}$ ion	≤100mM does not affect enzyme activity
BME	≤500mM does not affect enzyme activity	Mg^{2+} ion	Essential for activity, 100mM does not inhibit enzyme activity
Na^{+}ion	≤1M does not affect enzyme activity	Mn^{2+} ion	≤15mM does not affect enzyme activity
K^{+}ion	≤500mM does not affect enzyme activity	Ca^{2+} ion	≤25mM does not affect enzyme activity
EDTA	≥0.1mM inhibits enzyme activity	Zn^{2+} ion	≤10mM does not affect enzyme activity
Triton X-100	≤5% does not affect enzyme activity	Tween-80	≤5% does not affect enzyme activity
SDS	≥0.1% affects enzyme activity	$(NH_4)_2SO_4$	≤100mM does not affect enzyme activity
Urea	≤2M does not affect enzyme activity	GuHCl	≤0.5M does not affect enzyme activity
β-Propiolactone	≤0.05% does not affect enzyme activity	Formalin	≤0.05% does not affect enzyme



M、DNA Marker:
0、质粒 DNA;
1、Mg^{2+} 0 mM;
2、Mg^{2+} 1 mM;
3、Mg^{2+} 5 mM;
4、Mg^{2+} 10 mM;
5、Mg^{2+} 100 mM。



M、DNA Marker:
0、质粒 DNA;
1、BPL 0;
2、BPL 0.005%
3、BPL 0.01%;
4、BPL 0.025%;
5、BPL 0.05%。

Precautions:

1. Mg^{2+} plays a crucial auxiliary role in the catalysis of Benzonase nuclease. The presence of 1-2mM Mg^{2+} in the final reaction system is essential for the activity of Benzonase nuclease.
2. If a special reaction solution system is used, such as a high-salt solution, acidic or alkaline solution, containing high concentrations of detergents or denaturants, the amount of Benzonase nuclease used and the reaction time should be increased accordingly.