

Benzonase® Salt Tolerant Endonuclease

≥ 200 U/μL, for nucleic acid removal at high salt concentration

E5014

FOR RESEARCH USE ONLY

Not for use in diagnostic procedures. Not for Human or Animal Consumption.

Product Overview

The Benzonase® Salt Tolerant Endonuclease is an enzyme, different in amino acids sequence from other Benzonase® endonuclease references. It was designed with state-of-the-art protein engineering capabilities, to ensure the highest activity at high salt concentrations. The protein is a monomer with a molecular weight of about 27 kDa. The protein has an isoelectric point (pI) at pH 9.68. It is functional between pH 6 and 10, and from 0 °C to above 37 °C. Mg²⁺ (1–2 mM) is required for enzyme activity.

Benzonase® Salt Tolerant Endonuclease degrades both DNA and RNA, whether single stranded, double-stranded, linear, circular or supercoiled. No base preference is observed. As with all endonucleases, Benzonase® Salt Tolerant Endonuclease hydrolyzes internal phosphodiester bonds present between the nucleotides. Upon complete digestion, all free nucleic acids present in solution are reduced to 5'-monophosphate terminated oligonucleotides, which are three to five bases in length.

Use of a high salt concentration reduces AAV aggregation and facilitates removal of sticky DNA from the AAV capsids. Ionic strength and buffer composition affect the electric double layer (EDL) surrounding viral particles, compressing, or expanding it and leading to different electrostatic phenomenon.

The Benzonase® Salt Tolerant Endonuclease is an enzyme that can only be used with our proprietary detection kits. For consistent results, we recommend purchasing this item at [SigmaAldrich.com](https://www.sigmaaldrich.com).

Product Profile

- Active at higher salt concentration, up to 1 M NaCl
- Non-animal origin, recombinant from *E.Coli*, high purity
- No post-translational modifications
- High batch to batch reproducibility
- Free of detectable protease activity
- Does not contain any antimicrobial preservatives or protein stabilizers except glycerol
- Compatible with Deviron® detergents for cell lysis

Storage and Stability

Precautions and Disclaimer

This product is for R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the product at -10 to -25 °C.

Product Performance

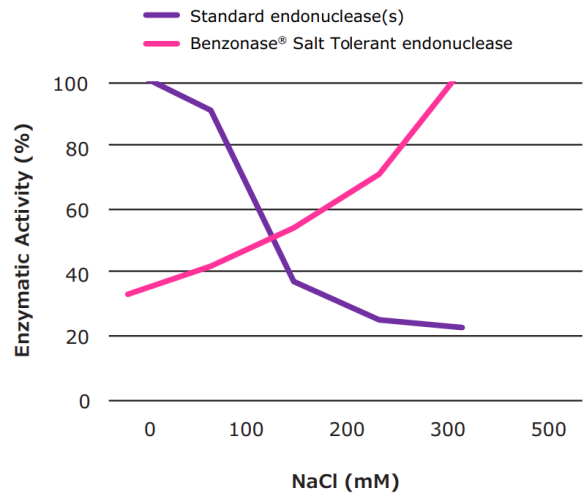


Figure 1: Enzymatic activity (%) in the presence of NaCl (mM).

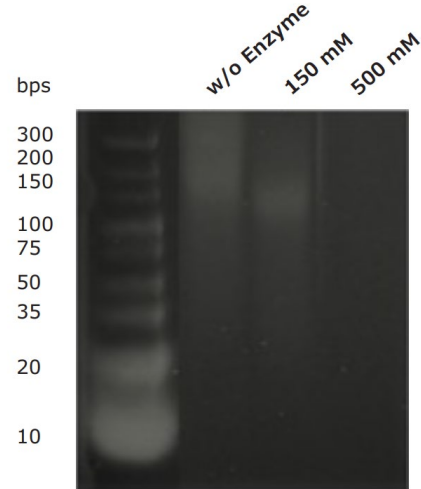


Figure 2: Benzonase® Salt Tolerant Endonuclease DNA digestion efficiency at 150 and 500 mM NaCl concentrations – 4% agarose gel electrophoresis.

Condition	Optimal*	Effective†
Mg ²⁺	1-2 mM	1-10 mM
pH	8.0-9.2	6-10
Temperature	37 °C	0-37 °C
Monovalent cation concentration	500-1000 mM	200-1000 mM

Table 1: Benzonase® Salt Tolerant Endonuclease operating conditions.

* "Optimal" is defined as the condition under which Benzonase® Endonuclease retains > 90% of its activity.

† "Effective" is defined as the condition under which Benzonase® Endonuclease retains > 15% of its activity.

Detergent	Detergent Concentration	Impact on enzymatic activity
Devirone® 13-S9	1%	Null
Devirone® C1	1%	Null
Polysorbate 20	1%	Null
TRITON® X-100	1%	Null

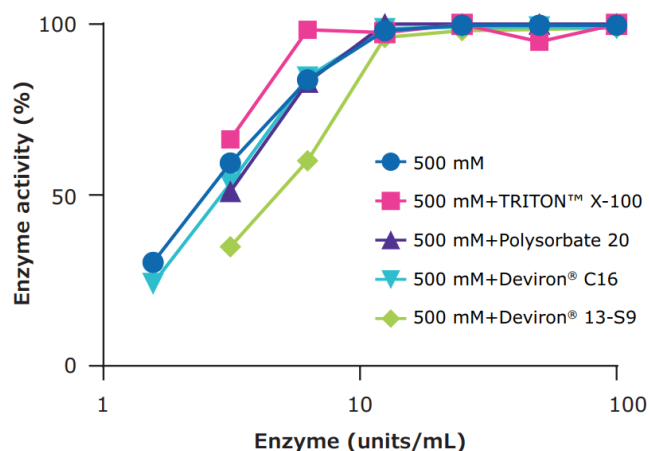


Table 2 and **Figure 3:** Benzonase® Salt Tolerant Endonuclease enzymatic activity is not negatively affected by 4 detergents commonly used for cell lysis.

Usage Information

As an endonuclease, the Benzonase® Salt Tolerant Endonuclease operates with the same conditions as standard Benzonase® products. The exception is for monovalent cation concentration, where we recommend a minimum of 200 mM NaCl for Benzonase® Salt Tolerant.

The enzyme can be inhibited by addition of EDTA or exposure to heat (> 52 °C for 10 minutes).

Procedures used to remove the legacy Benzonase® enzyme will also remove the Benzonase® Salt Tolerant Endonuclease. Tangential Flow Filtration is the most common one.

An ELISA kit can be used to ensure a robust detection of Benzonase® Salt Tolerant Endonuclease. Benzonase® ST ELISA (EZBNZST-185K) has been developed to support the residual testing of Benzonase® Salt Tolerant (ST) Endonuclease.

Notice

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