



Features

GENIUS™ Nuclease, premium grade is designed for preclinical stage, has more comprehensive QC testing (such as HCP and so on) and tighter specifications based on the following GENIUS features.

GENIUS™ Nuclease, premium grade has the same activity and performance with GMP Grade Nuclease, which enables a seamless transition from preclinical development to clinical phases. By using GENIUS™ Nuclease, premium grade in your development phase you can easily transit into clinical and commercial phases and avoid needing to amend your manufacturing process and undertake comparability studies.

- **Generally usable:** Generally usable for removing all forms of DNA and RNA from biological products, reducing viscosity and preventing cell clumping.
- **Efficient:** Efficient reaction, rapid degradation, reduce processing time.
- **Native:** Native structure, tag free, the enzyme activity is more guaranteed.
- **Ideal:** Ideal for DNA and RNA clearance
- **Ultra pure:** Ultra pure: High purity and activity
- **Specific:** Specific nuclease, no protease activity

Product Details

GENIUS™ Nuclease, premium grade is a tag-free recombinant form of *Serratia marcescens* extracellular endonuclease produced in *Escherichia coli* using a proprietary process at ACROBiosystems. GMP GENIUS™ Nuclease performs optimally at low and physiological salt concentrations (0-200 mM NaCl). The product is a homodimer with monomer molecular masses of about 30 kDa. The enzyme is a non-specific nuclease with high specific activity, degrading single- and double-stranded nucleic acids in any form (single stranded, double stranded, linear, circular, and supercoiled). It hydrolyzes internal phosphodiester bonds present between the nucleotides to 5'-phosphorylated oligonucleotides of 3-5 bases in length.

Application

Elimination of nucleic acids from biologics, suitable for samples with 0-200 mM salt in presence of 2-10 mM Mg⁺⁺

- viral vaccine development process
- viral vector development process for cell and gene therapy (CGT)
- Other biologics development processes

Operating Conditions

GENIUS™ Nuclease, premium grade is functional between pH 6 and 10 (optimal at pH 8 - 8.5), and from 0°C to 42 °C (optimal at 35 °C - 42 °C). Mg²⁺ (1-2 mM) is required for enzyme activity. 1 mM EDTA reduced the activity by 30% in the presence of 1 mM MgCl₂; 0.1 M EDTA eliminated all enzyme activity. In the presence of 1 mM MgCl₂, enzyme levels were reduced 75% by 0.1 M CaCl₂ or 1 M NaCl. Under standard assay conditions, 1 mM iodoacetate had no effect on the enzymatic rate, whereas 1 mM mercaptoethanol and maleic acid reduced the activity by only 5 to 10%. 10 mM p-Chloromercuribenzoate completely inactivates the enzyme, while 0.64 M beta-mercaptoethanol in the

Enzyme Activity

≥250 U/μL

Host Cell Protein

<0.05 ng/μg of protein tested by ELISA.

Protease Activity

Negative.

Sterility

Negative

Mycoplasma

Negative.

Endotoxin

Less than 0.01 EU per μg by the LAL method.

Formulation

Supplied as 0.2 μm filtered solution in 20 mM Tris, 20 mM NaCl, 2 mM MgCl₂, pH 8.0 with glycerol as protectant.

Contact us for customized product form or formulation.

Shipping

This product is supplied and shipped with dry ice, please inquire the shipping cost.

Storage

This product is stable after storage at:

- The product **MUST** be stored at -20°C or lower upon receipt;
- -20°C for 24 months under sterile conditions.

**Discounts, Gifts,
and more!**





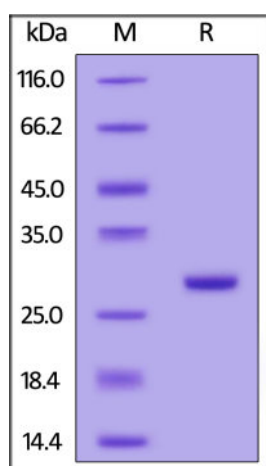
presence of 2 M urea causes only partial inactivation of the enzyme. 4 or 7 M Urea increases the enzyme activity.

Purity

>95% as determined by SDS-PAGE.

>99% as determined by SEC-HPLC.

SDS-PAGE



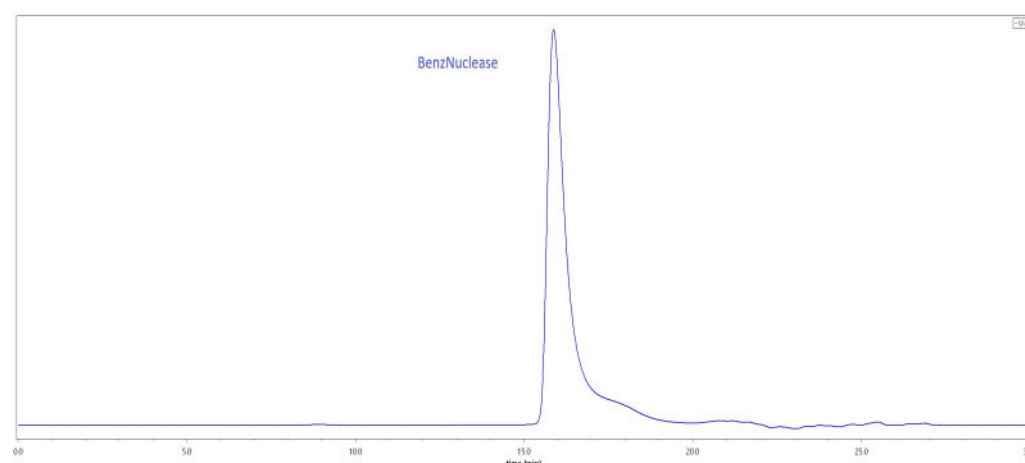
The gel was stained with Coomassie Blue. The purity of the protein is greater than 95%.

Bioactivity

Specific activity for GENIUS™ Nuclease, premium grade is measured under standard assay conditions. The specific activity of GENIUS™ Nuclease, premium grade is $> 1.2 \times 10^6$ units/mg protein (QC tested). One unit will digest sonicated salmon sperm DNA to acid-soluble oligonucleotides equivalent to a ΔA_{260} of 1.0 in 30 min at pH 8.0 at 37 °C, which corresponds approximately to complete digestion of 37 μ g DNA. Note that 1 KU=1000 units.

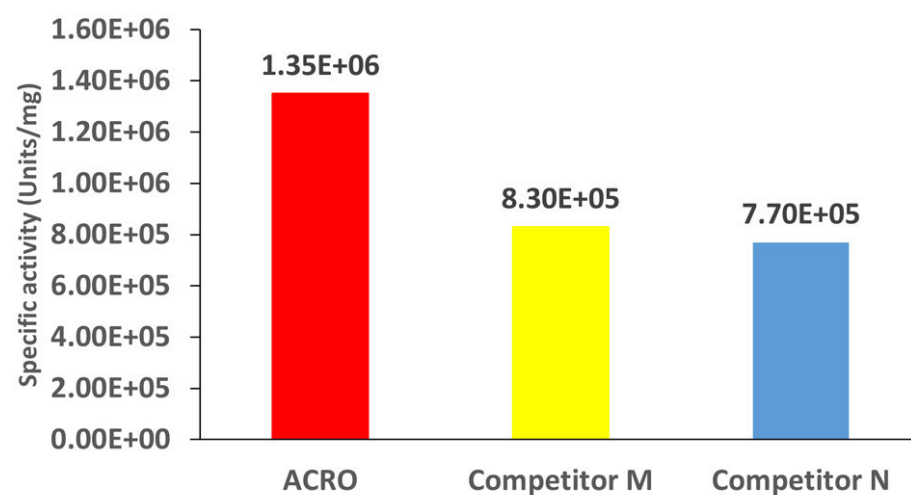
Bioactivity-Stability

SEC-HPLC



The purity of GENIUS™ Nuclease, premium grade (Cat. No. NUE-S5119) was greater than 99% as determined by SEC-HPLC.

Comparison of Specific activity



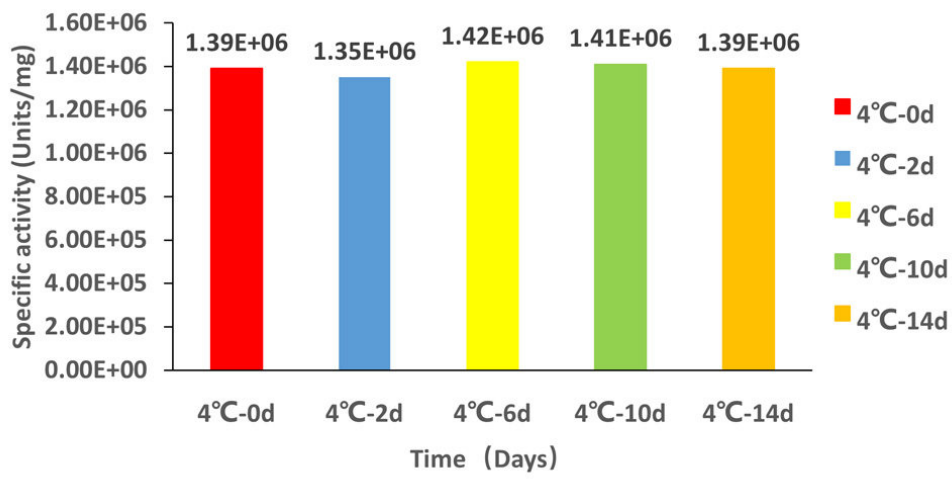
GENIUS™ Nuclease, premium grade shows high specific activity.

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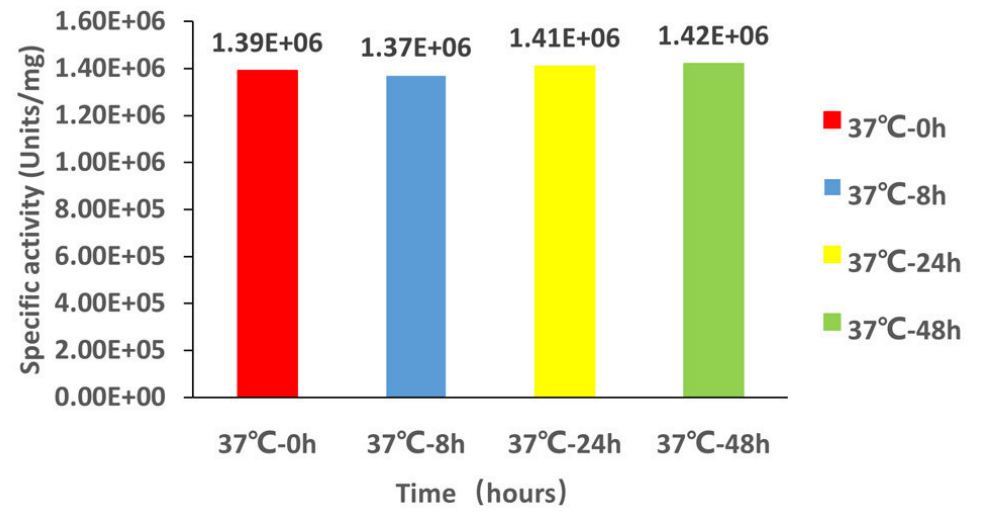


Stability at 4°C over time



The specific activity shows that GENIUS™ Nuclease, premium grade is stable at 4°C for 14 days.

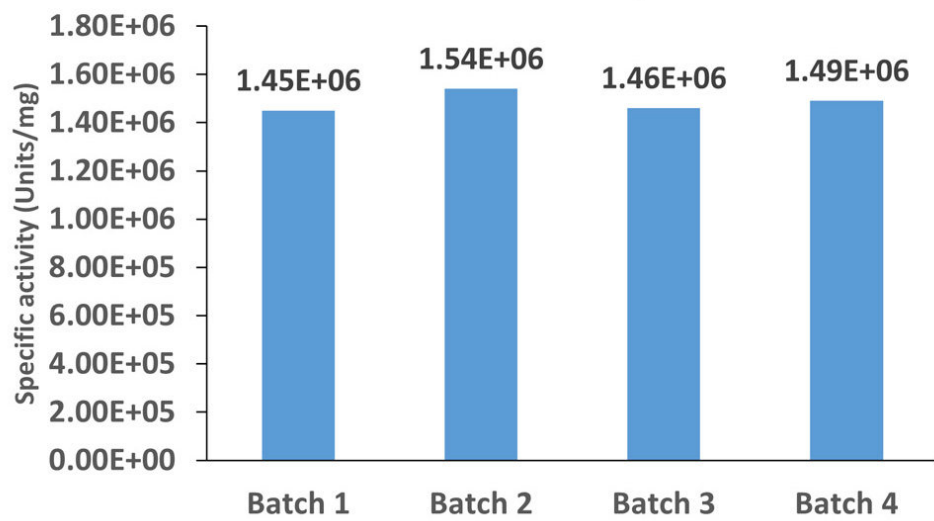
Stability at 37°C over time



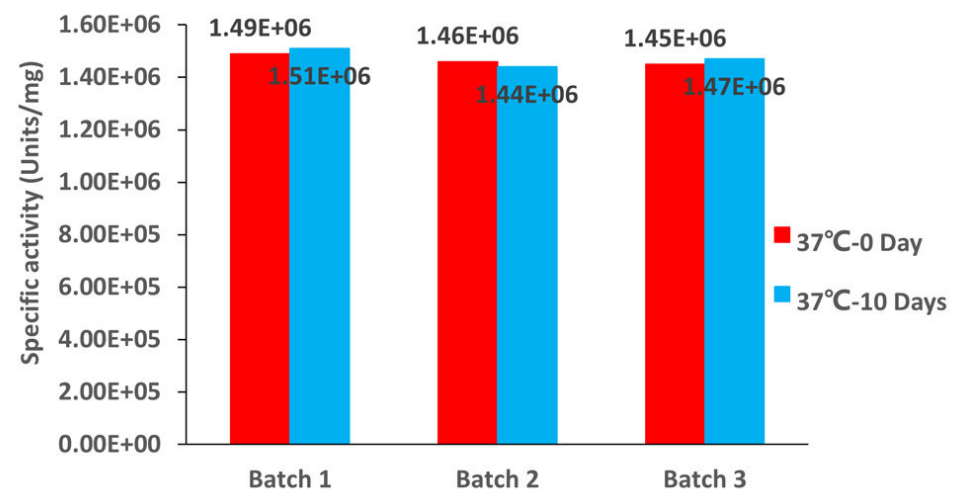
The specific activity shows that GENIUS™ Nuclease, premium grade is stable at 37°C for 48 hours.

Batch Consistency

Batch consistency



Batch consistency at 37°C



Clinical and Translational Updates

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