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

Source

GENIUS™ Nuclease, premium grade is a tag free recombinant form of Serratia marcescens extracellular endonuclease produced in Escherichia coli cells using a proprietary process at ACROBiosystems. GENIUS™ Nuclease, premium grade is a homodimer with monomer molecular masses about 30 kDa with an isoelectric point (pI) at pH 6.85. The enzyme is a non-specific nuclease with high specific activity, which degrades both 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 3-8 bases in length.

Operating conditions

GENIUS™ Nuclease, premium grade is functional between pH 6 and 10 (optimal at pH8- 8.5) , and from 0℃ to 42 ℃ (optimal at 35 ℃- 42 ℃). 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-Chloromercurybenzoate completely inactivates the enzyme, while 0.64 M beta-mercaptoethanol in the presence of 2 M urea causes only partial inactivation of the enzyme. 4 or 7 M Urea increases the enzyme activity.

Application

Elimination of nucleic acids from recombinant proteins

- Preclinical viral vaccine production, which will transit from preclinical development to clinical phases.
- Preclinical viral vector production for cell and gene therapy （CGT）,which will transit from preclinical development to clinical phases.
- Other preclinical development and production uses

Endotoxin

Less than 0.01 EU per μg by the LAL method.

Host Cell Protein

<0.05ng/ug of protein tested by ELISA.

Protease activity

negative

Sterility

The sterility testing was performed by Membrane Filtration Method described in CP<1101>.

Mycoplasma

Negative

Purity

>95% as determined by SDS-PAGE.
>99% as determined by SEC-HPLC.

Formulation

Supplied as 0.2 μm filtered solution in 20mM Tris, 20mM NaCl, 2mM MgCl2, pH 8.0 with 50% Glycerol as protectant.

Storage

Avoid repeated freeze-thaw cycles.

This product is stable after storage at:

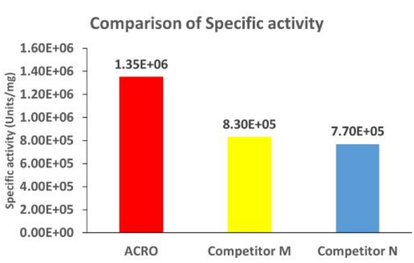
- The product MUST be stored at-20°C or lower upon receipt;
- -20°C for 24 months under sterile conditions.

Shipping

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

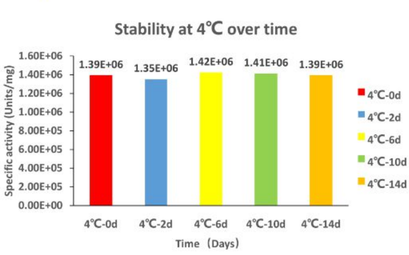
Bioactivity

Specific activity for GENIUS™ Nuclease, premium grade is measured under standard assay conditions. The specific activity of GENIUS™ Nuclease, premium grade is >1.2 x 10e6 units/mg protein. One unit will digest sonicated salmon sperm DNA to acid-soluble oligonucleotides equivalent to a ΔA260 of 1.0 in 30 min at pH 8.0 at 37 ℃, which corresponds approximately to complete digestion of 37 μg DNA. Note that 1 KU=1000 units.

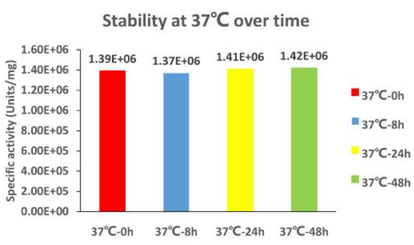


GENIUS™ Nuclease, premium grade shows high specific activity.

Stability



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



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

Batch consistency