

# Universal Nuclease (GMP Grade)



**Features**

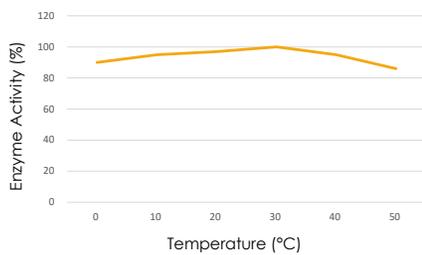
- High purity and high enzyme activity: Purity≥99%, specific activity≥1.0×10<sup>6</sup> U/mg.
- Adaptable: High stability, strong tolerance, can maintain high stability and reactivity in 6 M Urea, 0.1 M Guanidine HCl, 0.4% Triton X-100, 0.1% SDS, 1 mM EDTA, 1 mM PMSF conditions, it is compatible with a variety of cell lysates such as RIPA or containing a variety of ionic and nonionic detergents, reducing agents and protein extraction reagents.
- High production standards: Produced under GMP conditions to meet the needs of large-scale use from R&D to production.
- Meet the requirements of the Pharmacopoeia: no animal origin, no antibiotics, no endotoxin.
- Wide range of applications: It degrades all forms of DNA and RNA and is widely used to remove nucleic acids from biological products.

**Quality Control and Methods**

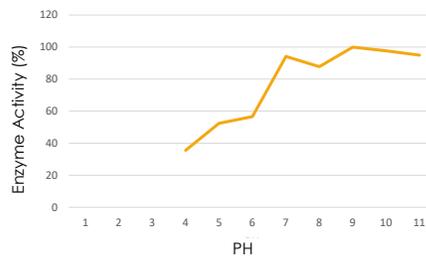
| Item                 | Standard                          | Method                                 |
|----------------------|-----------------------------------|--|
| Appearance           | Colorless and transparent         | Visualization                          |
| Protein Purity       | ≥99%                              | HPLC                                   |
| Enzyme Activity      | ≥250 U/μl                         | Universal Substrate Method             |
| Specific Activity    | ≥1.0×10 <sup>6</sup> U/mg protein | Enzyme Activity/ Protein Concentration |
| Bacterial Residue    | Not detectable                    | Culture                                |
| Protease Activity    | Not detectable                    | Universal Substrate Method             |
| Endotoxin Content    | <0.25 EU/1000 U                   | Gel                                    |
| Host Protein Residue | ≤10 ppm (μg/ml)                   | ELISA                                  |
| Mycoplasma Residue   | Not detectable                    | Mycoplasma Detection Kit (qPCR)        |
| Pathogen Detection   | Not detectable                    | PCR                                    |

**Effects of Different Reaction Conditions on Enzyme Activity**

Effects of Reaction Temperature and pH on Enzyme Activity

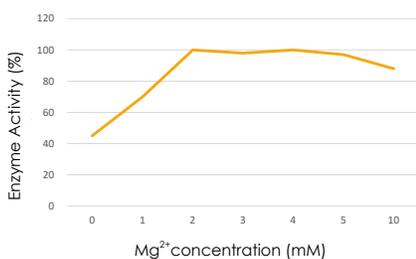


TransGen products are active from 0 to 50°C

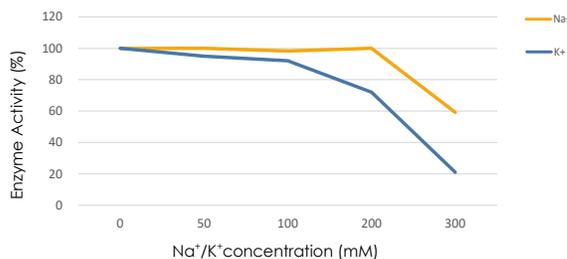


TransGen products have strong active from PH 7-10

Effects of Cations on Enzyme Activity

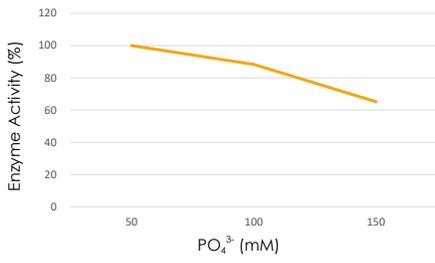


When the Mg<sup>2+</sup> concentration over 2 mM, Universal Nuclease is fully active

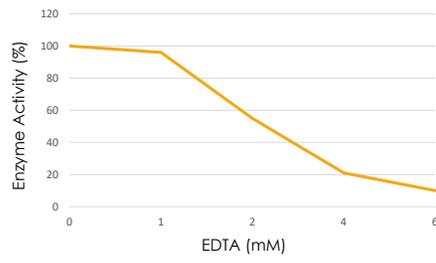


Na<sup>+</sup>/K<sup>+</sup> concentration over 200 mM has a strong inhibitory effect on enzyme activity

Effects of Common Buffer Components on Enzyme Activity

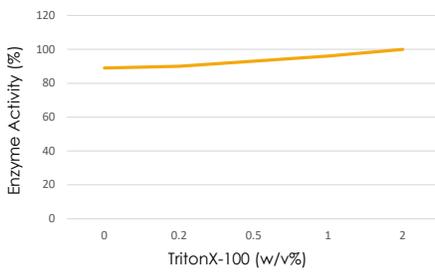


PO<sub>4</sub><sup>3-</sup> concentration over 150 mM has a strong inhibitory effect on enzyme activity

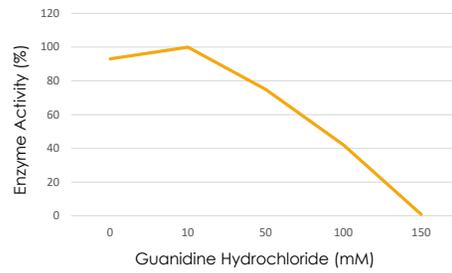


EDTA concentration over 2 mM has a strong inhibitory effect on enzyme activity

Effects of Common Surfactants on Enzyme Activity

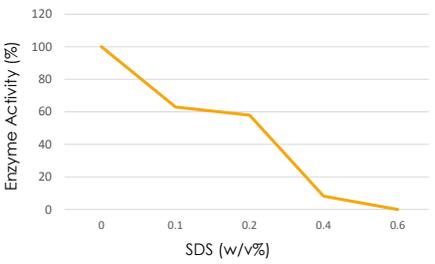


TritonX-100 concentration (w/v%) within 2% has no strong inhibitory effect on enzyme activity

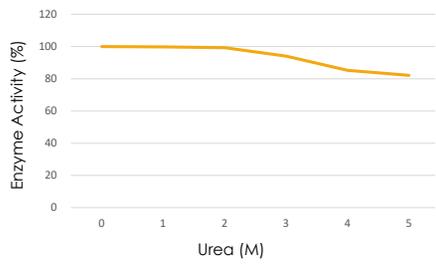


Guanidine hydrochloride concentration over 50 mM has no strong inhibitory effect on enzyme activity

Effects of Common Protein Denaturants on Enzyme Activity

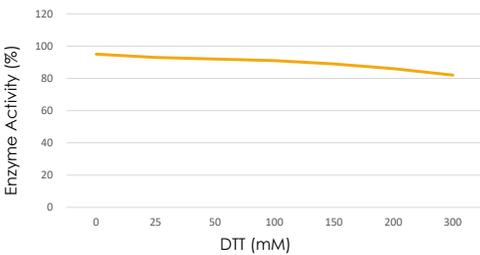


SDS concentration (w/v%) over 0.2% has a strong inhibitory effect on enzyme activity

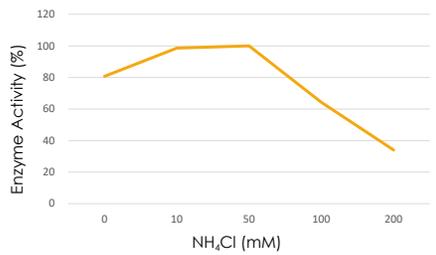


Urea concentration within 1-5M has no strong inhibitory effect on enzyme activity

Effects of Other Common Reagents on Enzyme Activity

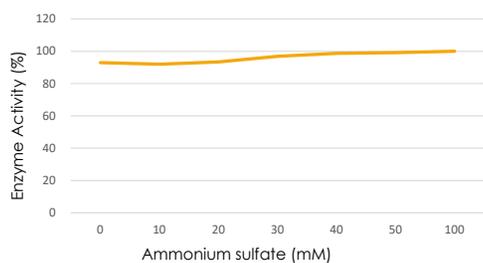


DTT concentration within 0-300 mM has no strong inhibitory effect on enzyme activity

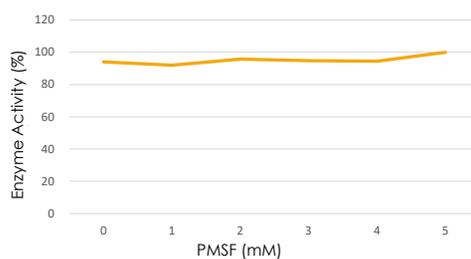


NH<sub>4</sub>Cl concentration over 100 mM has a strong inhibitory effect on enzyme activity

## Effects of Other Common Reagents on Enzyme Activity



Ammonium sulfate concentration within 0-100 mM has no inhibitory effect on enzyme activity



PMSF concentration within 1-5 mM has no inhibitory effect on enzyme activity

## Recommended Conditions of Use

| Condition Parameter  | Optimum Conditions | Valid Conditions |
|--|--------------------|------------------|
| Mg <sup>2+</sup>   | 1~10 mM            | 1~20 mM          |
| pH   | 6.0~9.0            | 4.0~11.0         |
| Temperature  | 20~40°C            | 0~50°C           |
| DTT  | 0~100 mM           | > 0 mM           |
| β-Mercaptoethanol  | 0~100 mM           | > 0 mM           |
| Monovalent Cations (eg. K <sup>+</sup> , Na <sup>+</sup> ) | 0~40 mM            | 0~150 mM         |
| Phosphate Anion (PO <sub>4</sub> <sup>3-</sup> )           | 0~10 mM            | 0~100 mM         |

\*Note: Universal Nuclease activity is ≥90% under the optimum conditions listed in this table, and the enzyme activity is ≥15% under valid conditions.

| Product Name                   | Cat. No. | Specification |
|--------------------------------|----------|---------------|
| Universal Nuclease (GMP Grade) | LN201-01 | 100 μl        |
|                                | LN201-02 | 200 μl        |

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