Product Information

Nuclease Micrococcal

From *Staphylococcus aureus*

N3755

Storage Temperature −20 °C

Product Description

Enzyme Commission (EC) Number: 3.1.31.1

CAS Number: 9013-53-0

Molecular Weight: 16,807 (based on sequence)[1]

Extension coefficient: 0.935

This enzyme has an absolute need for Ca^{2+} for activity. The pH optimum varies according to Ca^{2+} concentration.[2] The optimal pH for RNase and DNase activities is between 9 and 10, depending on the Ca^{2+} concentration. At higher pH values, less Ca^{2+} is required. The inhibitory effect of high Ca^{2+} concentrations is more pronounced at higher pH values.[3] Mg^{2+} cannot replace Ca^{2+} in activating the enzyme.[4]

This enzyme will cleave DNA and RNA to leave 3'-nucleotides.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

Reconstitute to a concentration of 1 unit per 5 µL with water.

Storage/Stability

After reconstitution with water, aliquots may be frozen by immersion in a dry ice/alcohol bath and then stored at −20 °C. It is suggested that stability is improved if the product is dissolved in 0.1% BSA to minimize adsorption to container walls. Aliquots may also be re-lyophilized.

Protocol

For Nuclease Treatment

1. Transfer 500 µL of reconstituted lysate to a separate vial.
2. Add 5 µL of micrococcal nuclease solution (1 unit per 5 µL).
3. Start the reaction by adding 5 µL of 0.1 M $CaCl_2$ solution.
4. Mix gently and constantly for 2 minutes in a 28 °C water bath.
5. At the end of 2 minutes, add 10 µL of 0.1 M EGTA to stop the reaction and place the vial in an ice bath. Wait two minutes. Sample is ready to use.

References

1. Taniuchi, H., Anfinsen, C. B., & Sodja, A. (1967). The Amino Acid Sequence of an Extracellular Nuclease of Staphylococcus aureus: III. COMPLETE AMINO ACID SEQUENCE. Journal of Biological Chemistry, 242(20), 4752-4758.
2. Heins, J. N., Suriano, J. R., Taniuchi, H., & Anfinsen, C. B. (1967). Characterization of a nuclease produced by *Staphylococcus aureus*. Journal of Biological Chemistry, 242(5), 1016-1020.
3. Cuatrecasas, P., Fuchs, S., & Anfinsen, C. B. (1967). Catalytic properties and specificity of the extracellular nuclease of *Staphylococcus aureus*. Journal of Biological Chemistry, 242(7), 1541-1547.
4. Reddi, K. K. (1967). [33] Micrococcal nuclease. In Methods in enzymology (Vol. 12, pp. 257-262). Academic Press.

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