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Endoproteinase Glu-C
from *Staphylococcus aureus strain* V8

Product Number **P2922**
Storage Temperature -20 °C

Product Description

Enzyme Commission (EC) Number: 3.4.21.19
CAS Number: 66676-43-5
Molecular Weight: 29 kDa[1]
Extinction Coefficient: E^{mM} = 11.5 (280 nm)[2]

Endoproteinase Glu-C from *Staphylococcus aureus* strain V8 is composed of a single polypeptide chain. It consists of 115 amino acid residues and contains no sulfhydryl groups and is classified as a serine protease. This protease specifically cleaves peptide bonds at the carboxyl side of Asp and Glu residues when used in phosphate buffer, pH 7.8. However, when used in ammonium bicarbonate buffer, pH 7.8, or ammonium acetate buffer, pH 4.0, cleavage is restricted to the carboxyl side of Glu residues only.

Endoproteinase Glu-C is active over the pH range of 3.5 to 9.5 and exhibits maximal activity from pH 4.0 to 7.8. The enzyme exhibits maximal activity at pH 4.0 to 7.8 with hemoglobin as the substrate and an optimal pH of 7.8 is also observed with casein. Sigma determines the activity of this protease utilizing the chromogenic substrate Boc-L-glutamic acid α-phenyl ester at pH 7.8.[2,3,4,5]

Precautions and Disclaimer

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

Preparation Instructions

This enzyme is soluble in water at 1mg/ml.

Storage/Stability

Endoproteinase Glu-C is active in the presence of 0.2% SDS and retains 50% activity in 4 M urea. It is inhibited by DFP (diisopropyl fluorophosphate) and also by α_2-macroglobulin at equilmolar concentrations with the enzyme. It is also resistant to heat denaturation, with 70% activity remaining after heating at 100 °C for 3 minutes.[4]

Procedure

For cleavage of peptides at glutamate residues, dissolve the peptide/protein substrate in 0.1 M ammonium bicarbonate, pH 8.0, at a concentration of 10 mg/ml. For peptide or protein digestion a ratio of 3/100 (w/w) of enzyme to substrate is recommended. Incubate at 37 °C for 2-18 hours. To extend the cleavage to aspartate residues, perform the same incubation, but use 0.1 M sodium phosphate buffer, pH 7.8.[4]

References

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2. Drapeau, G.R., Protease from *Staphylococcus aureus*. Meth. Enzymol., **45**, part B, 469-475 (1976).
3. Drapeau. G.R., et al., Purification and properties of an extracellular protease of *Staphylococcus aureus*. J. Biol Chem., **247**, 6720-6726 (1972).
4. Burrell, M.M., ed., Enzymes of Molecular Biology, Human Press (Totowa NJ), Vol. 16, 287-288 (1993).
5. Houmard, J., and Drapeau, G.R., Staphlococcal protease: A proteolytic enzyme specific for glutamoyl bonds. Proc. Nat. Acad. Sci. USA, **69(12)**, 3506-3509 (1972).

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