Product Information

Aminopeptidase from *Aeromonas proteolytica*

Lyophilized powder, 50-150 units/mg protein

A8200

Product Description

CAS Registry Number: 37288-67-8

Enzyme Commission (EC) Number: 3.4.11.10

pI:[1] 3.0-3.5

λ_{max}: 278 nm[1]

Extinction coefficient: $E^{1\%}$ = 14.4 (278.5 nm)[1]

Synonym: AAP

Aminopeptidases are a family of widely distributed proteases which participate in many significant biological processes, such as protein maturation, hormone production, and peptide digestion.[2-4] While several Zn^{2+} peptidases are known to contain a single Zn^{2+} ion in their active site,[5-7] a few metalloaminopeptidases, including those from bovine lens,[8-11] *Escherichia coli*,[12] *Aeromonas proteolytica*,[13] and *Streptomyces griseus*[14] have been proven by means of X-ray crystallography to contain a dinuclear metal active site.

This AAP product is a metalloenzyme, which contains 2 atoms of Zn^{2+} in a single polypeptide with an approximate molecular weight of 29.5 kDa, as determined by sedimentation. Several crystallographic studies of aminopeptidase from *Aeromonas proteolytica* (AAP) have been published.[15-28] Other publications have reported mechanistic studies on AAP.[19-29]

Several dissertations[30-32] have cited use of product A8200 in their research protocols.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

This product is soluble in water (1 mg/mL) and aqueous buffers.

Storage/Stability

This enzyme has a high degree of stability, being stable even to temperatures of 70 °C for several hours.[1] Partial inactivation occurs in 8 M urea. Maximum stability and activity are at pH 8.0-8.5.

The enzyme is stable for several years at –20 °C. It may be lyophilized and reconstituted with little loss in activity.

References

1. Prescott, J.M., and Wilkes, S.H., *Methods Enzymol.*, 45, 530-543 (1976).
2. Taylor, A., *FASEB J.*, **7(2)**, 290-298 (1993).
3. Taylor, A., *Trends Biochem. Sci.*, **18(5)**, 167-172 (1993).
4. Gonzales, T., and Robert-Baudouy, J., *FEMS Microbiol. Rev.*, **18(4)**, 319-344 (1996).
5. Christianson, D.W., and Lipscomb, W.N., *Acc. Chem. Res.*, **22(2)**, 62-69 (1989).
6. Mangani, S. *et al.*, *Coord. Chem. Rev.*, **120**, 309-324 (1992).
7. Matthews, B.W., *Acc. Chem. Res.*, **21(9)**, 333-340 (1988).
8. Burley, S.K. *et al.*, *Proc. Natl. Acad. Sci. USA*, **87(17)**, 6878 -6882 (1990).
9. Burley, S.K. *et al.*, *J. Mol. Biol.*, **224(1)**, 113-140 (1992).
10. Sträter, N., and Lipscomb, W.N., *Biochemistry*, **34(28)**, 9200 -9210 (1995).

11. Kim, H., and Lipscomb, W.N., *Adv. Enzymol. Relat. Areas Mol. Biol.*, **68**, 153-213 (1994).
12. Roderick, S.L., and Matthews, B.W., *Biochemistry*, **32(15)**, 3907-3912 (1993).
13. Chevrier, B. *et al.*, *Structure*, **2(4)**, 283-291 (1994).
14. Greenblatt, H.M. *et al.*, *J. Mol. Biol.*, **265(5)**, 620-636 (1997).
15. Chevrier, B. *et al.*, *Structure*, **237(2)**, 393-398 (1996).
16. Stamper, C. *et al.*, *Biochemistry*, **40(24)**, 7035-7045 (2001).
17. Desmarais, W.T. *et al.*, *Structure*, **10(8)**, 1063-1072 (2002).
18. Stamper, C.C. *et al.*, *Biochemistry*, **43(30)**, 9620-9628 (2004).
19. Chen, G. *et al.*, *Biochemistry*, **36(14)**, 4278-4286 (1997).
20. Bennett, B., and Holz, R.C., *Biochemistry*, **36(32)**, 9837-9846 (1997).
21. De Paola, C.C. *et al.*, *Biochemistry*, **38(28)**, 9048-9053 (1999).
22. Ustynyuk, L. *et al.*, *Biochemistry*, **38(35)**, 11433-11439 (1999).
23. Huntington, K.M. *et al.*, *Biochemistry*, **38(47)**, 15587-15596 (1999).
24. Bienvenue, D.L. *et al.*, *J. Inorg. Biochem.*, **78(1)**, 43-54 (2000).
25. Bienvenue, D.L. *et al.*, *J. Biol. Inorg. Chem.*, **7(1-2)**, 129-135 (2002).
26. Bienvenue, D.L. *et al.*, *Biochemistry*, **41(11)**, 3712-3719 (2002).
27. Bennett, B. *et al.*, *J. Am. Chem. Soc.*, **124(44)**, 13025-13034 (2002).
28. Schürer, G. *et al.*, *Biochemistry*, **43(18)**, 5414-5427 (2004).
29. Bzymek, K.P., and Holz, R.C., *J. Biol. Chem.*, **279(30)**, 31018-31025 (2004).
30. Touati, Jeremy, "Phage Selection of Bicyclic Peptide Ligands and Development of a New Peptide Cyclisation Method". École Polytechnique Fédérale de Lausanne, Ph.D. dissertation, p. 68 (2012).
31. Štefková, Kristýna, "Energy metabolism and enzymatic activity in the *Ips typographus* in relation to diapause". University of South Bohemia (České Budějovice), Ph.D. dissertation, p. 55 (2017).
32. Zhao, Xiling, "Discovery and Structural Characterization of Lantihpeptides from Soil and Rumen Bacteria". University of Illinois at Urbana-Champaign, Ph.D. dissertation, p. 66 (2017).

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