Product Information

α-Chymotrypsin Agarose from Bovine Pancreas

Lyophilized powder, 2,000-3,500 units/g agarose (1 mL gel will yield 65-120 units)

C9134

Product Description

Storage Temperature: 2-8 °C

α-Chymotrypsin is a serine protease enzyme that is 241 amino acids in length, with three peptide chains:[1]

- A chain: 13 residues
- B chain: 131 residues
- C chain: 97 residues

α-Chymotrypsin from bovine pancreas selectively catalyzes peptide bond hydrolysis on the C-terminal side of tyrosine (Tyr), phenylalanine (Phe), tryptophan (Trp), and leucine (Leu). Secondary hydrolysis also occurs on the C-terminal side of methionine (Met), isoleucine (Ile), serine (Ser), threonine (Thr), valine (Val), histidine (His), glycine (Gly), and alanine (Ala).[1]

α-Chymotrypsin is both activated and stabilized by Ca^{2+} ions. The enzyme is active in the presence of 0.1% SDS and 2 M guanidine hydrochloride. Inhibitors of α-chymotrypsin include diisopropyl fluorophosphate (DFP), phenylmethane sulfonyl fluoride (PMSF), N-*p*-tosyl-L-phenylalanine chloromethyl ketone (TPCK), chymostatin, aprotinin, α1-antitrypsin, and α2-macroglobulin. α-Chymotrypsin is also completely inhibited by 10 mM Cu^{2+} and Hg^{2+}.[2]

This α-Chymotrypsin-Agarose product is prepared by the immobilization of α-Chymotrypsin, originally isolated from bovine pancreas, to activated cross-linked beaded agarose. Several references[3-9] and dissertations[10-13] have cited use of this C9134 product in their research protocols.

Precautions and Disclaimer

This product is 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.

Product

This α-Chymotrypsin-Agarose product is sold as a lyophilized powder, stabilized with lactose.

Preparation Instructions

General instructions for re-suspension of our enzyme-agarose conjugates include the following steps.

1. Suspend the lyophilized enzyme-agarose to 5-10 mg solid/mL water.
2. Allow brief hydration of the lyophilized powder.
3. Filter and wash the rehydrated enzyme-agarose product several times with either water or your intended buffer.
4. Re-suspend the enzyme-agarose in your intended buffer. The product is now ready for use.

Storage/Stability

For re-use of our enzyme-agarose conjugates, the following steps may be used as a general guide:

- Wash the enzyme-agarose with water and/or buffer until it is free of substrates.
- For long-term storage, enzyme-agarose products may be re-converted to their dry form, as follows:
  - Wash the enzyme-agarose with the buffer of choice.
  - Drain excess buffer.
  - Dry the enzyme-agarose in a vacuum desiccator.
  - Store the freshly lyophilized enzyme-agarose at 2–8 °C.

References

5. Hess, G. P., in *The Enzymes*, 3rd ed., Vol. 3 (Boyer, P. D., ed.). Academic Press (New York, NY), pp. 213-248 (1971).
6. Sweeney, P. J., and Walker, J. M., *Methods Mol. Biol.*, **16**, 277-303 (1993).
7. Trempe, M. R., and Carlson, G. M., *J. Biol. Chem.*, **262(9)**, 4333-4340 (1987).
8. Nimmo, G. A. *et al.*, *Planta*, **213(2)**, 250-257 (2001).
9. Millward, S. W. *et al.*, *ACS Chem. Biol.*, **2(9)**, 625-634 (2007).
10. Xu, K. *et al.*, *J. Biol. Chem.*, **283(49)**, 34337-34344 (2008).
11. Taketani, Y. *et al.*, *Biosci. Biotechnol. Biochem.*, **75(10)**, 1872-1879 (2011).
12. Garri, C. *et al.*, *Oncotarget*, **9**, 27363-27379 (2018).
13. Díaz-García, C. *et al.*, *Int. J. Mol. Sci.*, **22(21)**, 11954 (2021).
14. Alic, Arna, "Involvement of Proteases and Kinases in Mast Cell Activation". University of London, Ph.D. dissertation, pp. 71, 129, 132, 137, 150, 161, 213 (2001).
15. Vecchiet, Monica, "Risposta anti-glutine nella malattia celiaca" ("Anti-gluten response in celiac disease"). Università degli Studi di Trieste, Ph.D. dissertation, p. 40 (2008).
16. Bøgh, Katrine Lindholm, "Sensitising capacity of peptides from food allergens". Technical University of Denmark, Ph.D. dissertation, p. 114 (2012).
17. Bezerra, Lady Clarissa Brito da Rocha, "Purificação, caracterização bioquímica e potencial quimiopreventivo de um novo inibidor de quimotripsina de sementes de *Enterolobium contortisiliquum* (Vell.) Morong" ("Purification, biochemical characterization and chemopreventive potential of a new chymotrypsin inhibitor from *Enterolobium contortisiliquum* (Vell.) Morong seeds"). Universidade Federal do Ceará, Ph.D. dissertation, p. 40 (2014).

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