

Product Information

Hyaluronidase from bovine testes

Catalog Number **H3884**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS RN 37326-33-3
EC 3.2.1.35
Synonyms: Hyaluronate 4-glycanohydrolase,
Hyaluronoglucosaminidase

Product Description

Molecular mass: 60 kDa¹
Extinction Coefficient: $E^{1\%} = 8.0 (280\text{ nm})^2$

Hyaluronidase from bovine testes is a tetramer of 4 equal subunits with a molecular mass of 14 kDa each.³ This glycoprotein enzyme contains 5% mannose and 2.2% glucosamine.¹ It randomly hydrolyzes 1,4-linkages between N-acetyl- β -D-glucosamine and D-glucuronate residues in hyaluronate. It also hydrolyzes 1,4- β -D-glycosidic linkages between N-acetyl-galactosamine or N-acetyl-galactosamine sulfate and glucuronic acid in chondroitin, chondroitin 4- and 6-sulfates, and dermatan.⁴ The enzyme's pH optimum is 4.5 to 6.0.⁵

The following compounds inhibit hyaluronidase: Fe^{2+} , Fe^{3+} , Zn^{2+} , Cu^{2+} , heparin, aurintricarboxylic acid, sulfated, nitrated, or acetylated hyaluronic acids, sulfated cellulose esters, sulfated chitin esters, sulfated carboxycellulose, sulfated xylan, bile salts, sulfated steroids, hexylresorcinol, *o*- and *p*-quinones, and sulfated aliphatic alcohols.⁶

Hyaluronidase is often used in conjunction with collagenase to dissociate the extracellular matrix between cells of animal tissue, in order to release viable cells for use in tissue culture. It may also be used to clarify synovial fluids in order to make cell counts possible.

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.

Preparation Instructions

This enzyme is soluble in 20 mM sodium phosphate buffer, pH 7.0, with 77 mM sodium chloride and 0.1 mg/ml BSA at 1 mg/ml, yielding a clear solution.

Procedure

Synovial fluid clarification protocol is as follows:

1. Prepare a 0.5 mg/ml enzyme solution in cold 20 mM sodium phosphate buffer, pH 7.0, with 77 mM NaCl and 0.1 mg/ml BSA.
2. Using a dropper, add 1 drop per ml of fluid to be treated.
3. Incubate 5 minutes at room temperature.

Storage/Stability

It is recommended that fresh solutions be prepared before use. Stability testing of frozen solutions of this product has not been performed in our laboratories. One published reference cites storage of 1.0 mg/ml stock solutions of hyaluronidase in PBS at $-20\text{ }^{\circ}\text{C}$.⁷

References

1. Borders, C.L., Jr., and Raftery, M.A., *J. Biol. Chem.*, **243(13)**, 3756-3762 (1968).
2. Worthington Enzyme Manual (Freehold, NJ: 1993), pp. 224.
3. Khorlin, A.Y. *et al.*, *FEBS Lett.*, **31(1)**, 107-110 (1973).
4. *Enzyme Nomenclature*, Academic Press (San Diego, CA: 1992), p. 350.
5. De Saegui, M. *et al.*, *Arch. Biochem. Biophys.*, **121(3)**, 548-554 (1967).
6. *The Enzyme Handbook*, Schomburg, D., and Salzmann, M., Springer-Verlag (Berlin Heidelberg: 1991) Vol. 4, EC 3.2.1.35, p. 2.
7. Brem, G., and Nowshari, M.A., in *Methods in Molecular Biology, Volume 254: Germ Cell Protocols* (Volume 2; H. Schatten, ed.). Humana Press (Totowa, NJ; 2004), p. 218.

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