COSMO BIO CO., LTD.
Inspiration for Life Science

ENZYME

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Catalog No. UOM001

Chondroitinase ABC endo enzyme (*E.coli*)

CAS RN 9024-13-9

EC 4.2.2.20 (Formerly EC 4.2.2.4)

Background :

Chondroitinase ABC (ChABC), an enzyme isolated and purified from Proteus vulgaris, a gram-negative bacillus, has the ability to degrade glycosaminoglycans such as chondroitin sulfate proteoglycans (CSPG). ChABC has been shown to degrade and inactivate CSPG in *in vivo*, and administration of the enzyme at the site of spinal cord injury accelerates recovery in many models. CSPG is known as a glycoprotein which constitutes connective tissue such as cartilage, and it shoulders the inhibitory role in nerve regeneration in the nervous system. Therefore the significance of the enzyme as a tool for studying especially in the field of neuroscience is increasing.

Product Description :

The product was purified from BL21AI *E.coli* culture, expression induced by IPTG & L-arabinose. Cells were lysed by passing through a pressure chamber in a buffer containing EDTA-free protease inhibitors. Lysate was loaded onto a 1-ml nickel-sepharose resin column in the presence of 20mM imidazole and eluted with an increasing imidazole concentration gradient in 50mM Tris-HCl + 0.5M NaCl at pH8.0. Eluted enzyme was buffer-exchanged through Sephadex G25 resin into 50mM Tris-HCl + 50mM NaCl (pH 8.0). An equal volume of glycerol was added (50% final conc.) before storing enzyme solution at -20°C.

Molecular mass (ref 1, 2):120 ~ 145 kDa (gel filtration and sucrose gradient ultracentrifugation)
SDS-PAGE yielded 1 non-identical subunit with molecular masse of c.a. 115 kDa.

pH Optimum (ref 1): pH 8.0 (chondroitin sulfate), pH 6.8 (hyaluronic acid)

Temperature optimum (ref 1): 37 °C
Activator (ref 2): 0.05 M acetate
Inhibitor (ref 2): 1 mM Zn2+

Specific Activity: 350mU per ml. (Activity was measured by determination of the amount to generate N-acethyl-D-galactosamine (GalNAc) at the reducing end derived from sodium chondroitin sulfate C (CSC) [Cosmo Bio Co., Ltd. CSR-NaCS-C2(ShC)3] according to the method of Morgan-Elson with N-acethyl-D-galactosamine (GalNAc) [Fuji Film Wako 019-12823] as a standard.).

Unit definition: One unit is defined as the amount of enzyme required to generate GalNAc at the reducing end corresponding to 1.0umole from CSC per minute at pH 8.0, 37°C.

Other activity: essentially protease free
Precautions and Disclaimer: This product is for Research Use Only (RUO), not for drug, household, or other uses.

Storage/Stability: Store the product at –20 °C (DO NOT FREEZE THE ENZYME).

References:

1. Yamagata, T., et al., J. Biol. Chem., 243, 1523-1535 (1968).
2. Martinez, J.B., et al., J. Biol. Chem., 234, 2236 (1959).
3. Saito, H., et al., J. Biol. Chem., 243, 1536-1542 (1968).
4. Suzuki, S., et al., J. Biol. Chem., 243, 1543 (1968).
5. Oike, Y., et al., J. Biol. Chem., 257, 9751 (1982).

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