

Product Information

Chondroitinase AC from *Flavobacterium heparinum* recombinant, expressed in *E. coli*

Catalog Number **E2039**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS RN 9047-57-8
EC 4.2.2.5
Synonym: Chondroitin AC lyase

Product Description

Chondroitinase AC from *Flavobacterium heparinum* is an eliminase that degrades chondroitin sulfates A and C, but not chondroitin sulfate B. The enzyme cleaves, via an elimination mechanism, both sulfated and non-sulfated polysaccharide chains that contain (1 \rightarrow 4)-linkages between hexosamines and glucuronic acid residues. The reaction yields oligosaccharide products, mainly disaccharides, with unsaturated uronic acids that can be detected by UV spectroscopy at 232 nm.^{1,2}

Chondroitinase AC was shown to inhibit melanoma invasion and proliferation, endothelial proliferation, and angiogenesis.³ Chondroitinase AC, but not chondroitinase B, has also been shown to induce apoptosis of melanoma and endothelial cells, as measured by the activity of caspase-3.³

The enzyme is supplied as a lyophilized powder containing potassium phosphate, NaCl, and a stabilizer.

Purity: $\geq 90\%$ (SDS-PAGE)

The product is essentially free of heparinase, sulfatase, heparitinase, glucuronidase, and protease activities.

Specific activity: ≥ 200 units/mg-protein

Unit definition: 1 unit is defined as the amount of enzyme that will liberate 1.0 μmole per minute of unsaturated disaccharides from chondroitin sulfate A at pH 6.7 at $37\text{ }^{\circ}\text{C}$, as measured by the change in A_{232} . The ϵ^{mM} for the reaction product Δ -Di-4S (chondroitin sulfates A and B) is 5.1 and 5.5 for Δ -Di-6S (chondroitin sulfate C).²

The optimal pH for the assay at $37\text{ }^{\circ}\text{C}$ is pH 6.7 and the optimal chondroitin sulfate concentration in the reaction is 1 mg/mL. The activity also depends on the salt concentration and is maximal at $>150\text{ mM NaCl}$.

The relative activity of the enzyme with chondroitin sulfates A, C, and B is 1.0, 0.6, and 0.03, respectively. Residual activity observed with chondroitin sulfate B may be due to small impurities in the substrate used for the assay.⁴

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

Reconstitute the contents of the vial with 100 μL of water to give a solution containing $\sim 25\text{ mM}$ potassium phosphate, pH 6.5, 150 mM NaCl, and a stabilizer.

Storage/Stability

Store the product at $-20\text{ }^{\circ}\text{C}$. When stored properly and unopened at $-20\text{ }^{\circ}\text{C}$, the enzyme has a recommended retest date of 2 years.

After reconstitution, the product may be kept at $4\text{ }^{\circ}\text{C}$ for 4 days, but it is recommended to store the solution in working aliquots at $-20\text{ }^{\circ}\text{C}$.

References

1. Saito, H. *et al.*, *J. Biol. Chem.*, **243(7)**, 1536-1542 (1968).
2. Yamagata, T. *et al.*, *J. Biol. Chem.*, **243(7)**, 1523-1535 (1968).
3. Denholm, E.M. *et al.*, *Eur. J. Pharmacol.*, **416(3)**, 213-221 (2001).
4. Aguiar, J.A.K. *et al.*, *Biotechnol. Appl. Biochem.*, **37(2)**, 115-127 (2003).

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