sigma-aldrich.com
3050 Spruce Street, Saint Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

b-N-Acetylglucosaminidase from bovine kidney

Product Number **A2415**
Storage Temperature 2-8 °C

Product Description

CAS Number: 9012-33-3
Molecular Weight: 109-114 kDa[1]
pI: 5.3-6.6 and 7.0-7.4
Synonyms: β-N-Acetylhexosaminidase; β-N-Acetyl-D-hexosaminide N-acetylhexosaminohydrolase

Bovine kidney β-N-acetylglucosaminidase is a lysosomal enzyme which will hydrolyze both N-acetyl-β-D-glucosaminides and N-acetyl-β-D-galactosaminides. It hydrolyzes the terminal non-reducing N-acetyl-D-hexosamine residues. This enzyme contains two predominant isozymes, Hex A and Hex B. Hex A is present in the greatest amount and consists of an μ,β heterodimer with subunits of 57 and 52 kDa. It has isoelectric points of 5.3 to 6.6. Hex B is a homodimer with subunits of 57 kDa and isoelectric points of 7.0-7.4.

Kinetic Properties at pH 5.0 and 25 °C.

Substrate	Hex A		Hex B	
	K_m (mM)	V_{max} (U/mg)	K_m (mM)	V_{max} (U/mg)
MU-GlcNAc	0.65	73	.45	85
MU-GalNAc	0.12	13	0.11	6.8
MU-GlcNAc-6-SO3-	0.29	9.5	-	<0.01

The pH optimum with 4-methylumbelliferyl-N-actyl-β-D-glucosaminide (MU-GlcNac, Product No. M 2133) is pH 5.0 with half-maximal activity at pH 3.9 and pH 6.2. The activity of β-N-actylglucosaminidase may also be determined with the chromogenic substrate p-nitrophenyl-N-acetyl-β-D-glucosaminide at pH 4.25.

Inhibitors include N-acetylglucosamine, acetamide, N-2-acetamido-2-deoyglucosylamine, N-acetylnojirimycin, N-acetyldeoxynojirmycin, N,N-Dimethyl-2, N-acetylglucono-1,5-lactone, and N-acetylgluconolactam.[1] β-N-acetylglucosamimidase may also be inhibited by N-acetylglucosamine-related 1,2,3 and 1,2,4 triazoles.[3]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (1 mg/ml).

References

1. Legler, G., et.al., Bovine N-acetyl-β-D-glucosaminidase: affinity purification and characterization of its active site with nitrogen containing analogs of N-acetylglucosamine. Biochim. Biophys. Acta, **1080(2)**, 89-95 (1991).
2. Methods of Enzymatic Analysis, 3rd ed., Vol. II, Bergmeyer, H. U., ed., Verlag Chemie GmbH (New York, NY: 1983), 130-131.
3. Panday, N., and Vasella, A., The inhibition of bovine kidney hexosaminidase by N-acetylglucosamine-related 1,2,3- and 1,2,4-triazoles is in agreement with an anti-protonation. Helv. Chim. Acta, **83**, 1205-1208 (2000).

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