

Recombinant Enzyme Product Specification Sheet

Cat. No.:	PRO-E0255	
LOT:	2010-0255-1	add this product to cart
Activity:	O-GlcNAcase	
Synonyms:	Hexosaminidase; β -acetylaminodeoxyhexosidase; <i>N</i> -acetyl- β -D-hexosaminidase; <i>N</i> -acetyl- β -hexosaminidase; β -hexosaminidase; β -acetylhexosaminidase; β -D- <i>N</i> -acetylhexosaminidase; β - <i>N</i> -acetyl-D-hexosaminidase; β - <i>N</i> -acetylglucosaminidase; hexosaminidase A; <i>N</i> -acetylhexosaminidase; β -D-hexosaminidase; GlcNAcase; O-glycoprotein 2-acetamido-2-deoxy- β -D-glucopyranosidase	
Nomenclature:	CAZy [GH84, glycoside hydrolase family 84], SPy1600	
Source organism:	<i>Streptococcus pyogenes</i> M1 GAS SF370	
Enzyme Commission No.:	3.2.1.52	
Specific activity:	5.56 U/mg (37°C; pH 7.6; pNP- <i>N</i> -acetyl- β -D-glucosaminide (1 mM))	
Purity:	>95 % as judged by SDS-PAGE	
Form and storage:	Supplied as a freeze-dried powder / cake	
pH optimum:	~ 7.6	
Temperature optimum:	50°C (stable up to 50°C)	
[Protein]:	2.694 mg/vial (i.e. 10.78 mg/mL when reconstituted by addition of 0.25 mL H ₂ O)	
Sequence length:	564 amino acids (view sequence)	
Accession No.:	NP_269657.1 , Q99YP8	
Molecular weight:	67487.4 Da	(theoretical)
	~ 67000 Da	(observed by SDS-PAGE)
	-	(observed by mass spectrometry)
Biological function:	The expression of this enzyme is up-regulated during phagocytosis and thus a role in virulence is possible. As the enzyme is unlikely to be secreted, it is likely to be involved in the removal of GlcNAc from a variety of glycoconjugates that are imported into the bacterial cell during pathogenesis. Processing O-GlcNAc from endogenous group A streptococcal proteins within the host bacterium itself appears unlikely, given that no O-GlcNAc transferase-like sequence is present in the genome of this strain. Its genomic organization strongly supports a role in glycan foraging, although given its up-regulation during phagocytosis a direct role in the	

deglycosylation of human O-GlcNAc proteins for the purpose of compromising the host cell machinery can not be ruled out (Sheldon *et al.* (2006) *Biochem. J.* **399**, 241-247)

Potential application(s): Analytical, biocatalysis, biochemistry, fundamental research

Comments: The enzyme is only active against β -N-acetylglucosaminides and has no hyaluronidase activity. The enzyme also has been shown to remove O-GlcNAc from eukaryotic glycoproteins (Sheldon *et al.* (2006) *Biochem. J.* **399**, 241-247). No activity is observed with β -N-acetylgalactosaminides

Usage: Reconstitute by the addition of 0.25 mL of H₂O (to give a final concentration of 10.78 mg/mL (59.92 U/mL) with respect to O-GlcNAcase). Between uses, store at -20°C. **NB** – in this aqueous form the enzyme can be freeze-thawed > 10 x without loss of activity

Assay: One unit is defined as the amount of enzyme required to release 1 μ mol of pNP from pNP-N-acetyl- β -D-glucosaminide (1 mM) per minute in 10 mM HEPES buffer, pH 7.6, at 37°C, as measured at 410 nm

Primary sequence:

MTIYHALKDYQEVMTRGDYLVDFTPLTCRFVGRFFRFENQKALLAELATSKYFQWIEEGQAEVTMKHFFN
RQLAKDAFTLKI SEDKEIIIESQNLRGFRYAQEALLKVMTFKGDKLYLPVSVKHSPSFAMRGIIEGFY
TPWTRERLDCLRFIGNKRMNTYMYAPKDDDYQRKLWRDLYPEDWVTYFKELLAVAKEEGLDFWYMISPG
LDFDYTKREADYQLLYQKLQQLLALGVCHFGLLLDDIDYQIVDAVERRFKKTAYAQAHLATEVHHFLNQ
AAPELVICPTEYDNHHSIYLQELSERIPKEVAFFWTGPSTLASQISQADIETMAAVYQRP I I IWDNI PV
NDYQKDPERLFLTPFANRSPFLCQPDYQVKGIVSNPMISWELSKLTLTDMSHYLWDANRYQPSHSWLET
TDYTEDTELALALQAFAWHNGNRHLHRDLPFVEVEEALLAKDVSTLSAWVAELVERVNTLRKLDKPAFQQA
IAPWFERVAKDQDFWQAMLNQEPQLETLYADLQEDKHRIGSDIPSRYYRIYYQQQDKLTANQGQVTQARP
EDYA

Literature: 1. Sheldon *et al.* (2006) *Biochem. J.* **399**, 241-247