PROzyme®

CERTIFICATE OF ANALYSIS

PRODUCT NAME:	GLYKO® 4'-β-MANNOSYL CHITOBIOSE CORE (MNN)
PRODUCT CODE:	GKR-002100
LOT NUMBER:	P04B1602
PACK SIZE:	10 µg (qualitative standard for glycan identification)
PURITY:	≥90% of glycan by HPLC
FORM:	Dry solid
STORAGE:	Store at -20°C before and after reconstitution
EXPIRATION:	June 2015, may be used for 1 year after reconstitution (extended from prior exp. date based on re-assay)
RE-ASSAY DATE:	June 2010

STRUCTURE:

Man β(1-4) GlcNAc β(1-4) GlcNAc

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Quality Control:

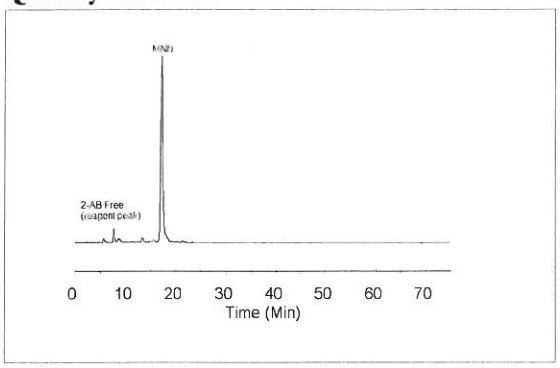

Figure 1 - HPLC results: MNN labeled according to the Signal™ 2-AB Labeling Kit (GKK-404) and analyzed on a GlycoSep™ N column (GKI-4728) in ammonium formate/acetonitrile.

Molecular Weight: 586.5 (average)[1]

Isolation: MNN N-linked core oligosaccharide is typically released from a glycoprotein using N-Glycanase®, separated from peptide material by adsorption chromatography, then purified further using a combination of glycosidase digestion and chromatographic techniques.

Structural Analysis: The purity and structural integrity of the glycan is assessed by one or more of the following techniques: HPLC[2], mass spectrometry[3,4], FACE[5], ^{1}H-NMR[6] and HPAEC-PAD[7].

Applications:

- qualitative standard for various analytical procedures
- radio-labeling, fluorescent-labeling or formation of a variety of oligosaccharide derivatives
- substrate for glycosidase and glycosyl transferase assays

Reconstitution: Use HPLC-grade water or an aqueous buffer to dissolve the glycan. Store reconstituted glycan at -20°C in working aliquots. Avoid multiple freeze/thaw cycles.

Handling: Allow the unopened vial to reach ambient temperature and tap on a solid surface to ensure that most of the material is at the bottom of the vial. Gently remove the cap, add desired volume of water or buffer, re-cap and mix thoroughly to redissolve. For maximal recovery, ensure that the cap lining is also rinsed and centrifuge the reconstituted vial briefly before use.

Make sure that any glassware, plasticware, solvents or reagents which come into contact with the glycan are free of glycosidases and carbohydrate contaminants. Minimize exposure to elevated temperatures or pH extremes. High pH will cause epimerization of the reducing terminal GlcNAc.

REFERENCES

1. Average molecular weight was calculated using the ExPASy GlycanMass calculator: http://us.expasy.org/tools/glycomod/glycanmass.html
2. Guile GR, Rudd PM, Wing DR, Prime SB and Dwek RA. A rapid and high-resolution high-performance liquid chromatographic method for separating glycan mixtures and analyzing oligosaccharide profiles. Anal Biochem 1996 Sep 5;240(2):210-226.
3. James DC and Jenkins N. Analysis of N-glycans by matrix-assisted laser desorption/ionization mass spectrometry. In: Jackson P, Gallagher JT, editors. A laboratory guide to glycoconjugate analysis, BioMethods Vol. 9. Basel: Birkhäuser; 1997. p. 91-112.
4. Papac DI, Wong A and Jones AJS. Analysis of acidic oligosaccharides by matrix-assisted laser desorption/ionization time of flight mass spectrometry. Anal Chem 1996 Sep 15;68(18):3215-3223.
5. Starr CM, Masada RI, Hague C, Skop E and Klock JC. Fluorophore-assisted carbohydrate electrophoresis in the separation, analysis, and sequencing of carbohydrates. J Chromatogr A 1996 Jan 12;720(1-2):295-321.
6. Vliegenthart JFG, Dorland L and van Halbeek H. High-resolution, ^{1}H-nuclear magnetic resonance spectroscopy as a tool in the structural analysis of carbohydrates related to glycoproteins. Adv Carb Chem Biochem 1983 41: 209-374.
7. Townsend RR, Hardy MR, Hindsgaul O and Lee YC. High-performance anion-exchange chromatography of oligosaccharides using pellicular resins and pulsed amperometric detection. Anal Biochem 1988 Nov 1;174(2):459-70.

Authorized Signature