CERTIFICATE OF ANALYSIS

PRODUCT NAME:	GLYKO® 3'-SIALYL-N-ACETYLLACTOSAMINE O-GLYCAN (3'-SLN)
PRODUCT CODE:	GKAD-01014
LOT NUMBER:	DP03L1001
PACK SIZE:	500 µg (qualitative standard for glycan identification)
PURITY:	≥90% of glycan by HPLC
FORM:	Supplied lyophilized as a sodium salt to prevent de-sialylation.
STORAGE:	Store at -20°C before and after reconstitution
EXPIRATION:	January 2015, may be used for 1 year after reconstitution (extended from prior exp. date based on re-assay)
RE-ASSAY DATE:	January 2010

STRUCTURE:

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Quality Control:

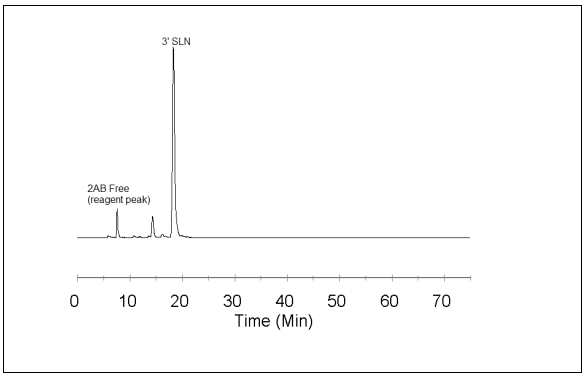

Figure 1 - **HPLC results**: 3'-SLN labeled according to the Signal™ 2-AB Labeling Kit (GKK-404) and analyzed on a GlycoSep™ N column (GKI-4728) in ammonium formate/acetonitrile.

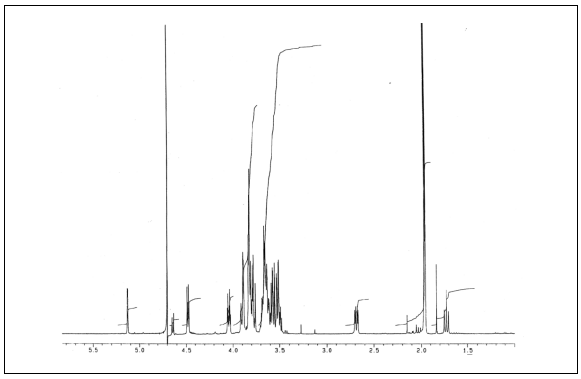

Figure 2 - One dimensional spectrum ^{1}H-NMR of 3'-SLN.

Molecular Weight: 674.6 (free acid)[1]

Isolation: 3'-SLN sialylated O-linked oligosaccharide is naturally found in human urine[8] and also can be chemically synthesized. Isolation is achieved using reverse phase chromatography.

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
- establishing the specificity of lectins and monoclonal antibodies
- substrate for fucosyltransferase involved in the biosynthesis[9] of Sialyl Le^{x} and to assay sialidase

Handling: The oligosaccharide is shipped as a dried solid. 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 the desired volume of water or buffer, re-cap and mix thoroughly to redissolve all the oligosaccharide. 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 extremes of pH. High pH will cause epimerization of the reducing terminal GlcNAc.

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

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.

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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.

8. Parkkinen J and Finne J. Isolation and structural characterization of five major sialyloligosaccarides and a sialylglycopeptide from normal human urine. Eur J Biochem 1983 136:355-362.

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Authorized Signature