



Certificate of Analysis

Fetuin Glycan Library

Cat. #: CLIBN-FETUIN-01

Batch #:B6B2-01

Size: ~7.5 µg

Expiry Date: Nov 2021

- Description:** A mixture of bi-, tri-, and tetra-antennary glycan standards with variable sialylation released from fetuin glycoprotein.
- Source:** The glycans in this product are released from a fetuin standard that is purified from fetal calf serum. Fetuin is a glycoprotein present in the circulation which is synthesized by hepatocytes. Fetuin exists in a variety of glycoforms containing bi-, tri-, and tetra-antennary oligosaccharides with variable sialylation.
- Form:** Dry. Lyophilised powder.
- Storage:** Refrigerate (-20°C) both before and after dissolving. This product is stable for at least 5 years as supplied.
- Shipping:** The product is shipped at ambient temperature.
- Handling:** Once dissolved avoid repeated thawing and refreezing, storage over 3 h at room temperature or above, exposure to light and long term exposure to acid as these will cause glycan desialylation.
- Safety:** This product is non-hazardous and has been purified from natural sources certified to be free of all hazardous material including pathogenic biological agents.

For research use only. Not for human or drug use

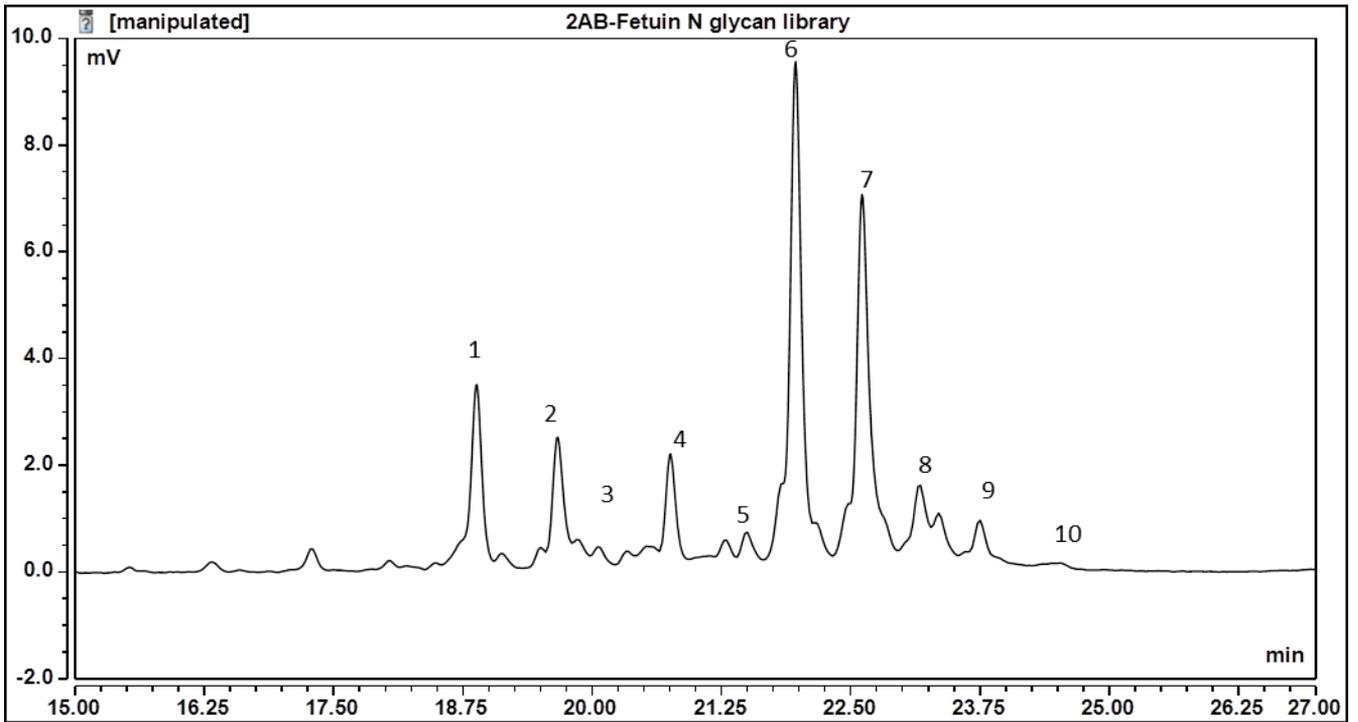


Figure 1: Waters UPLC BEH Glycan column profile of 2AB labelled fetuin glycans (CLIBN-FET-01, Batch B6B2-01).

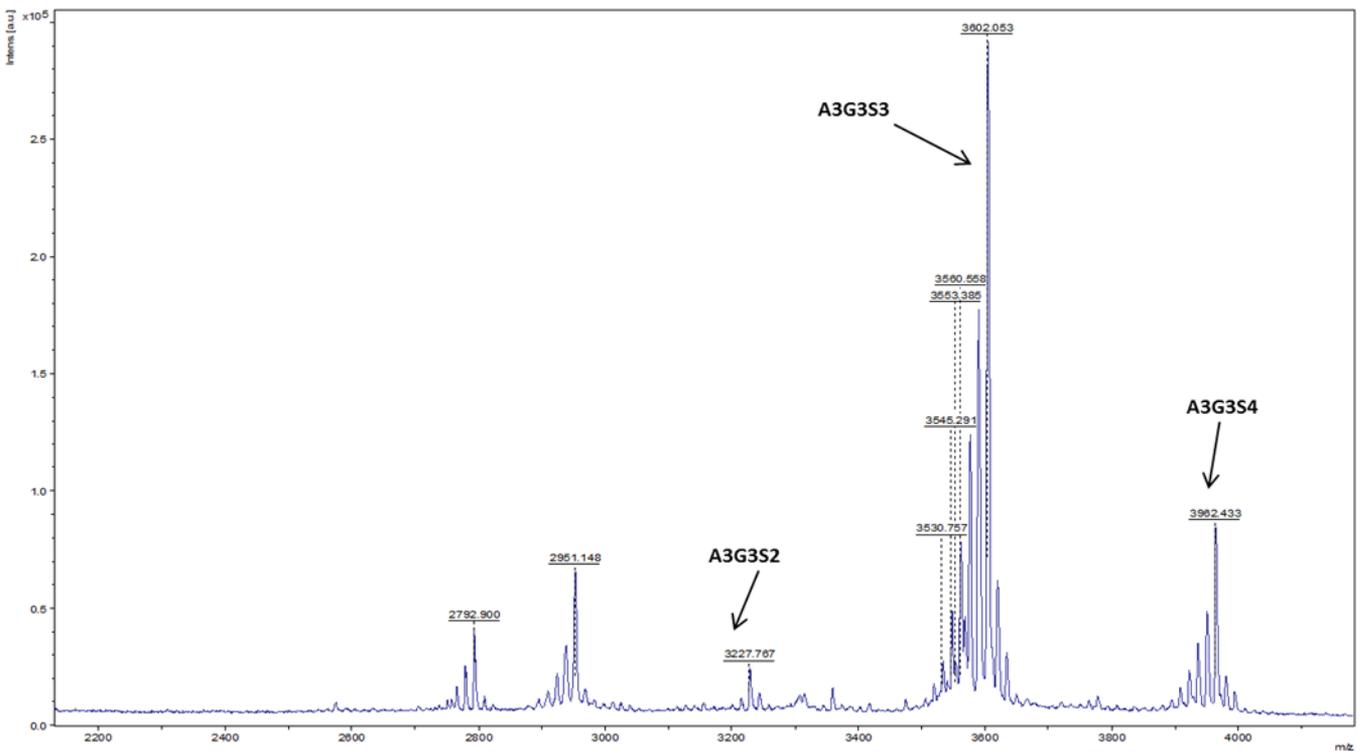


Figure 2: Positive ion mass spectrum of permethylated fetuin glycans (CLIBN-FET-01, Batch B6B2-01).

Peak Number	Assignment	Relative Amount (%)
1	A3G3	5.24
2/3/4	A3G2S2, A3G3S1, A3G3S2	13.4
5	A3G3S2, A3G2S3	5.09
6	A3G3S3, A3G3S4	31.87
7/8	A3G3S3, A3G2S4	30.07
9	A3G3S3, A3G3S4	3.38
10	A3G3S3, A3G3S4	0.28

Figure 3; Batch B6B2-01 Relative Peak amount chart

Table 1: Summary of bovine fetuin N-glycans. See the end of this document for details of the glycan nomenclature used. Many common N-glycans have similar reported GU values. Due to the heterogeneous nature of the sample variations in the linkage type of a sialic acid will cause variations in column retention times. A combination of GU value, mass spectrometry and exoglycosidase digestion can be used to unambiguously identify most N-glycans. For a more complete analysis of bovine fetuin, see the CofA provided for GCP-Fet-50.

Structure Abbreviations

All N-glycans have two core GlcNAcs; F at the start of the abbreviation indicates a core fucose, (6) after the F indicates that the fucose is α 1-6 linked to the inner GlcNAc; Mx, number (x) of mannose on core GlcNAcs; Ax, number of antenna (GlcNAc) on trimannosyl core; A2, biantennary with both GlcNAcs as β 1-2 linked; A3, triantennary with a GlcNAc linked β 1-2 to both mannose and the third GlcNAc linked β 1-4 to the α 1-3 linked mannose; A3', triantennary with a GlcNAc linked β 1-2 to both mannose and the third GlcNAc linked β 1-6 to the α 1-6 linked mannose; A4, GlcNAcs linked as A3 with additional GlcNAc β 1-6 linked to α 1-6 mannose; B, bisecting GlcNAc linked β 1-4 to β 1-3 mannose; Gx, number (x) of linked galactose on antenna, (4) or (3) after the G indicates that the Gal is β 1-4 or β 1-3 linked; [3]G1 and [6]G1 indicates that the galactose is on the antenna of the α 1-3 or α 1-6 mannose; Sx, number (x) of sialic acids linked to galactose; the numbers 3 or 6 in parentheses after S indicate whether the sialic acid is in an α 2-3 or α 2-6 linkage.

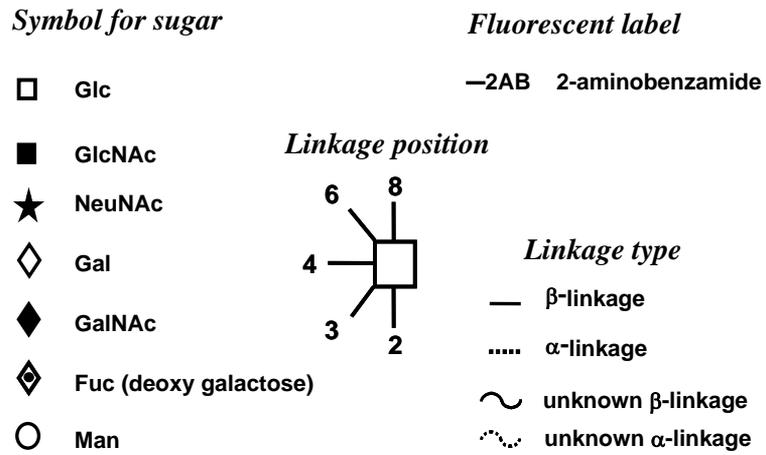


Figure 3: Symbols used to depict glycan structures



Warranties and Liabilities

Ludger warrants that the above product conforms to the attached analytical documents. Should the product fail for reasons other than through misuse Ludger will, at its option, replace free of charge or refund the purchase price. This warranty is exclusive and Ludger makes no other warranties, expressed or implied, including any implied conditions or warranties of merchantability or fitness for any particular purpose.

Ludger shall not be liable for any incidental, consequential or contingent damages.

This product is intended for *in vitro* research only.

Address

Ludger Ltd, Culham Science Centre, Oxford OX14 3EB United Kingdom

Tel: +44 1865 408 554

Fax: +44 870 163 4620

Email: info@ludger.com

www.ludger.com