

Certificate of Analysis

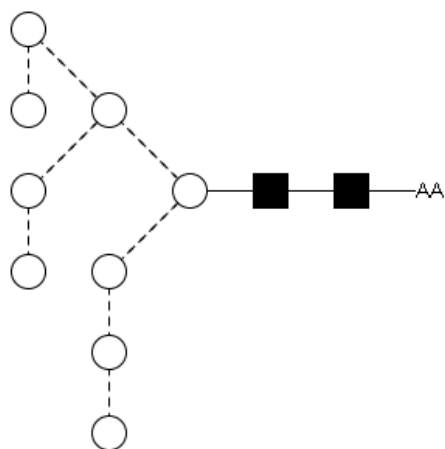
LudgerPure™ 2AA Labeled MAN9 Glycan

Cat. #: CAA-MAN9-01

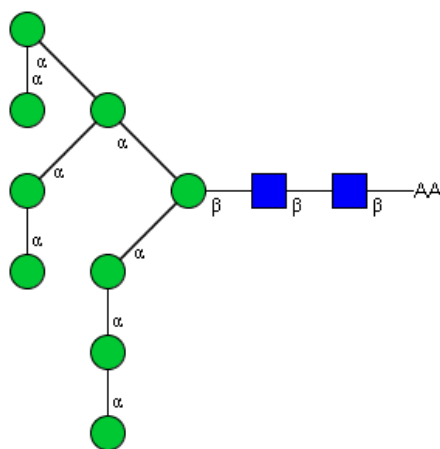
Batch: B688-02

Size: approx. 100 pmol

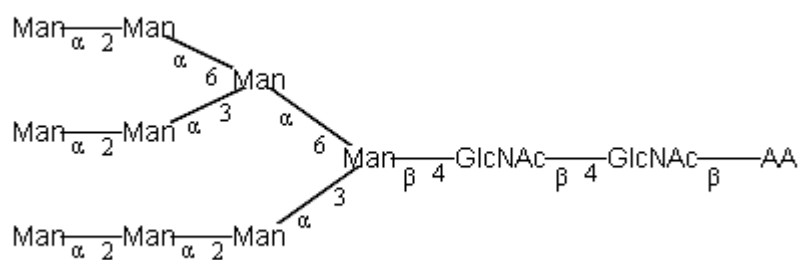
Structure



Oxford Notation



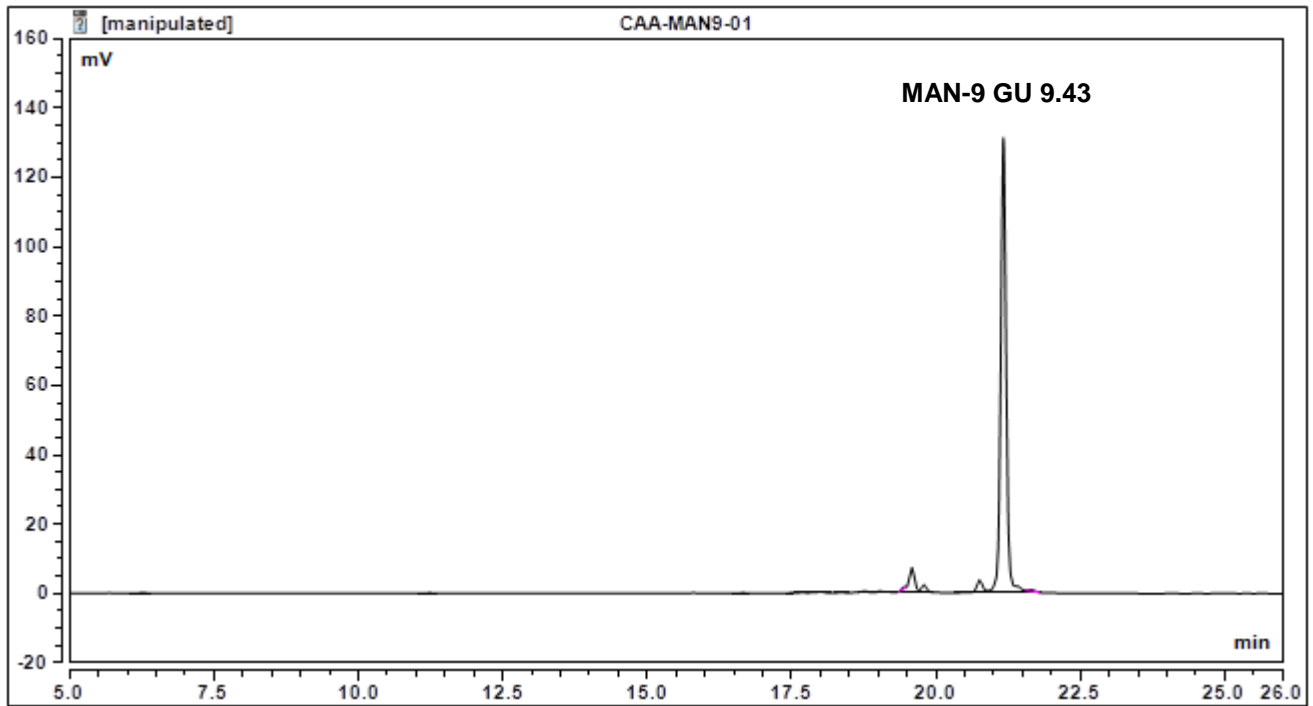
CFG Notation



Text Notation

Purity: 85.9% 2AA labeled MAN9 glycan, as assessed by HPLC - see Fig 1.

Amount: Sample vial determined to contain 109.2 pmols MAN9 glycan – Test performed 10 Aug 2016.



GU Value	Ret.Time (detected) min	Area mV*min	Rel.Area %
3.62	6.28	0.017	0.10
5.23	11.23	0.018	0.11
7.26	16.66	0.017	0.10
7.63	17.51	0.018	0.11
7.71	17.68	0.024	0.14
7.85	18.00	0.068	0.41
8.00	18.34	0.032	0.19
8.21	18.77	0.045	0.27
8.34	19.03	0.044	0.27
8.40	19.16	0.033	0.20
8.53	19.43	0.040	0.24
8.61	19.58	0.889	5.36
8.71	19.79	0.231	1.39
9.08	20.54	0.030	0.18
9.20	20.76	0.452	2.72
9.43	21.17	14.251	85.89
9.56	21.40	0.334	2.01
9.70	21.67	0.050	0.30

Figure 1: HILIC HPLC profile of 2AA labelled MAN9 glycan (see method conditions below)

(Cat. #: CAA-MAN9-01, Batch B688-02).

**MAN9 glycan structure identified by MALDI, MS & HPLC (GU value comparison to GlycoBase). This structure is drawn according to the scheme developed by Oxford-Dublin Glycobiology Laboratory (see Fig 2).*

2-AA MAN9 peak seen above, eluted at 21.2 minutes, under the following conditions:

Column: Waters BEH Glycan 1.7µm column (150mm)

Flow: 0.56mL/min.

Temperature: 60 °C

Solvent A: 50mM ammonium formate pH 4.4 Solvent B: 100 % acetonitrile

Gradient:

Time (min)	%B
0.0	78.0
1.5	78.0
24.8	58.0
25.8	40.0
25.9	78.0
31.0	78.0

Detector: Dionex FLD-3000

Excitation wavelength: 250 nm

Emission wavelength: 428 nm

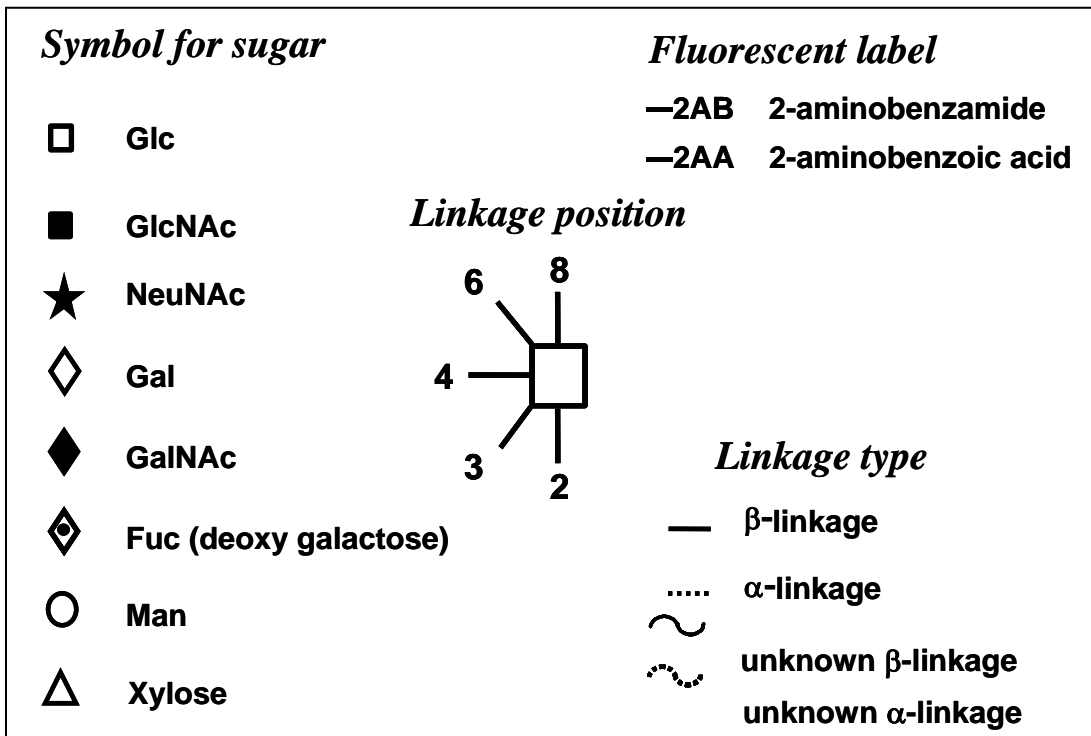


Figure 2: GlycoBase glycan structure key.