



Certificate of Analysis

LudgerTag Sialic Acid DMB Labeling Kit

Cat. #: LT-KDMB-A1

Batch #: B76K-02

Size: 1 set of labeling reagents per kit

This kit conforms to the specifications given in Ludger document # LT-KDMB-A1-Guide.

Each kit contains the following components:

| Quantity per Kit | Catalogue number | Batch number | Component Name |
|------------------|------------------|--------------|-----------------------------|
| 2 | LT-ACETIC2M-01 | B68H-01 | AceticAcid 2Molar |
| 1 | LT-MERCAPTO-01 | B753-02 | Mercaptoethanol |
| 1 | LT-DITHIO-01 | B74S-01 | Sodium Dithionite |
| 1 | LT-DMB-01 | B753-01 | DMB Dye |
| 1 | CM-SRP-01 | B74J-01 | Sialic Acid Reference Panel |
| 1 | CM-NEUAC-01 | B753-03 | N-Acetyl Neuraminic acid |
| 1 | CM-NEUGC-01 | B75B-01 | N-Glycolyl Neuraminic acid |

Expiry Date: May 2019

Certificate of Analysis

Sialic Acid Reference Panel

Cat. #: CM-SRP-01

Batch: B74J-01

Size: approx. 1.25 nmols

The sialic acid reference panel is a mixture of different sialic acids forms (as detailed on chromatogram below) sourced from bovine submaxillary mucin.

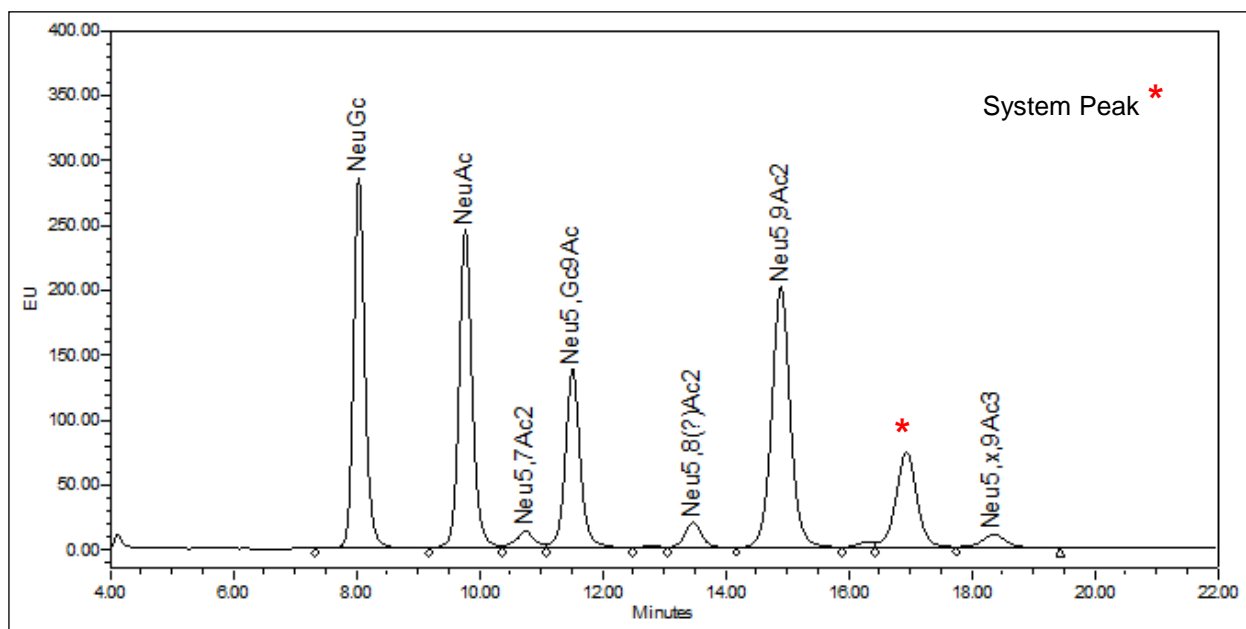


Figure 1: LudgerSep UR2 HPLC profile of DMB labeled Sialic acid Reference Panel (Cat. #: CM-SRP-01, Batch B74J-01).

Ludger

DMB labeled SRP peaks seen above eluted under the following HPLC conditions:

Column: LudgerSep R1 (Cat. #: LS-R1-4.6x150)

Flow: 0.5 ml/min.

Temperature: 30 °C

Solvent A: methanol:acetonitrile:water (7:9:84)

Solvent B: acetonitrile

Gradient:

| Time (min) | %B |
|------------|------|
| 0.0 | 0.0 |
| 19.0 | 0.0 |
| 19.5 | 90.0 |
| 23.5 | 90.0 |
| 24.0 | 0.0 |
| 30.0 | 0.0 |
| 35.0 | 0.0 |

Detector: Fluorescence

Excitation wavelength: 373 nm

Emission wavelength: 448 nm

Certificate of Analysis

NeuAc Standard

Cat. #: CM-NEUAC-01

Batch: B753-03

Size: 1.04 ± 0.03 nmol

The N-acetylneuraminic acid standard is a quantitative standard of NIST-F and USP traceable Neu5Ac monosaccharide.

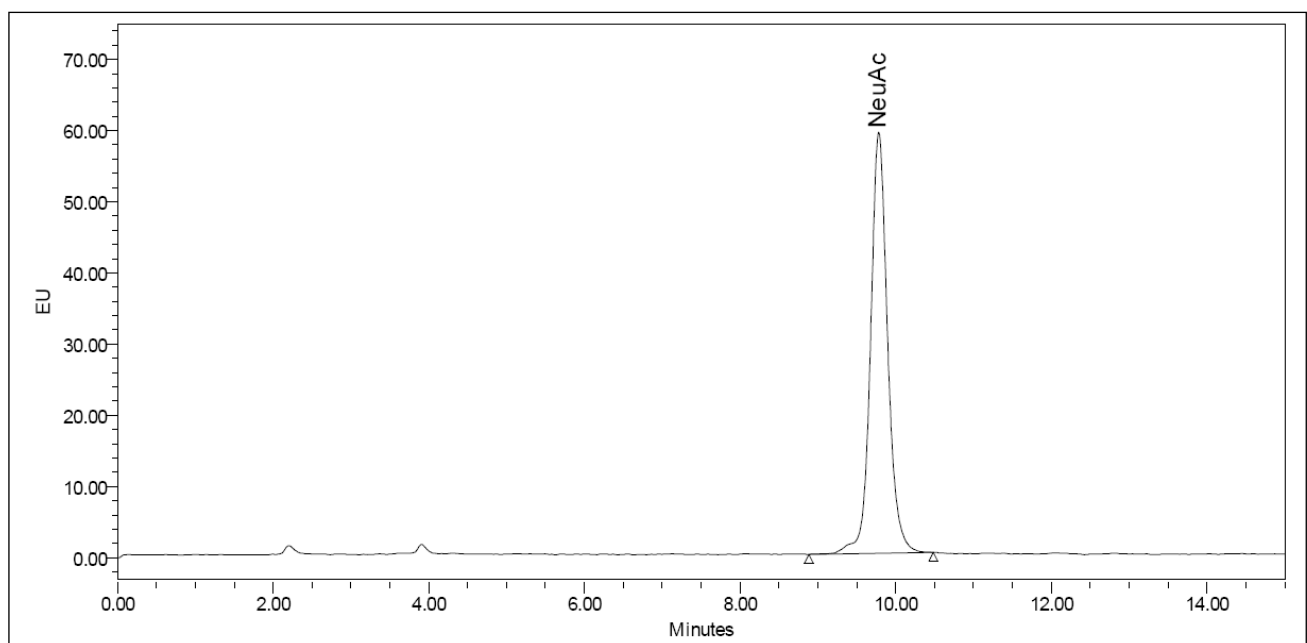


Figure 1: LudgerSep-R1 HPLC profile of 1,2-diamino-4,5-methylenedioxybenzene.2HCl (DMB) labeled NeuAc standard (Cat. #: CM-NEUAC-01, Batch B753-03).

Accuracy: This analysis was performed on 12 vials of CM-NEUAC-01.

The dispensed amount was determined as 1.04 ± 0.03 nmol NeuAc per vial.

Values are in Nmols \pm standard deviation.

Ludger

DMB labeled sialic acid standards eluted under the following HPLC conditions:

Column: LudgerSep R1 (Cat. #: LS-R1-4.6x150)

Flow: 0.5 ml/min.

Temperature: 30 °C

Solvent A: methanol:acetonitrile:water (7:9:84)

Solvent B: acetonitrile

Gradient:

| Time (min) | %B |
|------------|------|
| 0.0 | 0.0 |
| 19.0 | 0.0 |
| 19.5 | 90.0 |
| 23.5 | 90.0 |
| 24.0 | 0.0 |
| 30.0 | 0.0 |
| 35.0 | 0.0 |

Detector: Fluorescence

Excitation wavelength: 373 nm

Emission wavelength: 448 nm

Certificate of Analysis

NeuGc Standard

Cat. #: CM-NEUGC-01

Batch: B75B-01

Size: 1.11 ± 0.04 nmol

Expiry Date: 01 Jun 2022

The N-glycolylneuraminic acid standard is a quantitative standard of NIST-F and USP traceable Neu5Gc monosaccharide.

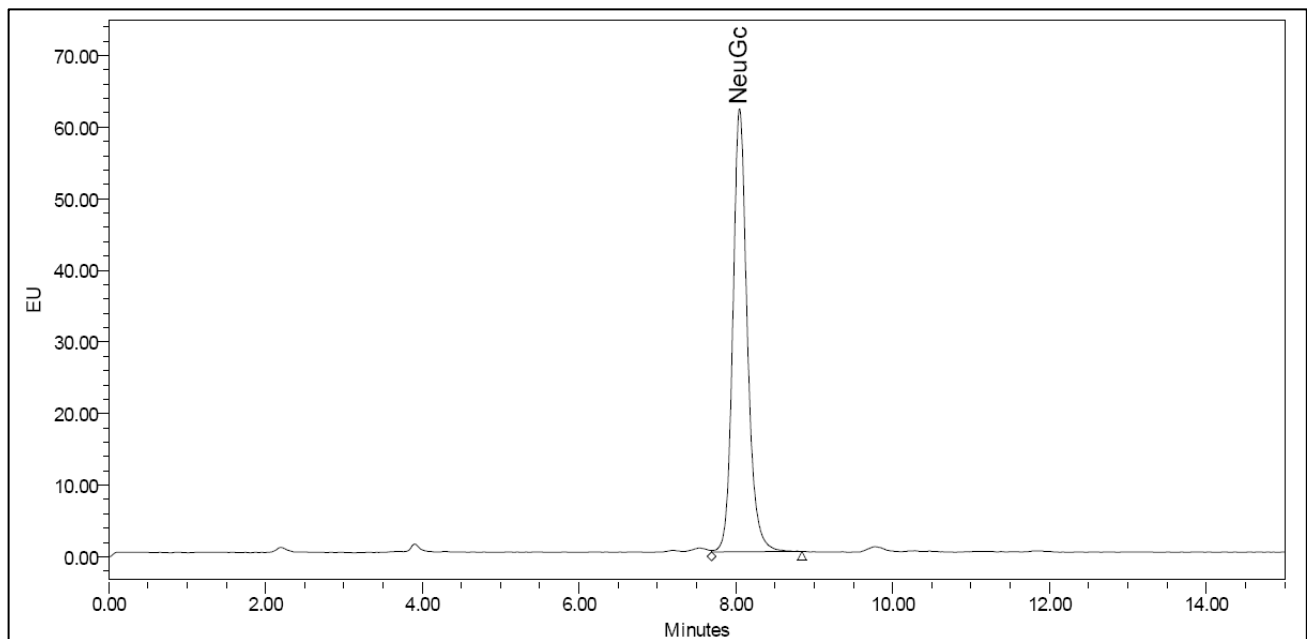


Figure 1: LudgerSep-R1 HPLC profile of 1,2-diamino-4,5-methylenedioxybenzene.2HCl (DMB) labeled NeuGc standard (Cat. #: CM-NEUGC-01, Batch B75B-01).

Accuracy: This analysis was performed on 12 vials of CM-NEUGC-01.

The dispensed amount was determined as 1.11 ± 0.04 Nmole NeuGc per vial.

Values are in Nmols \pm standard deviation.

Ludger

DMB labeled sialic acid standards eluted under the following HPLC conditions:

Column: LudgerSep R1 (Cat. #: LS-R1-4.6x150)

Flow: 0.5 ml/min.

Temperature: 30 °C

Solvent A: methanol:acetonitrile:water (7:9:84)

Solvent B: acetonitrile

Gradient:

| Time (min) | %B |
|------------|------|
| 0.0 | 0.0 |
| 19.0 | 0.0 |
| 19.5 | 90.0 |
| 23.5 | 90.0 |
| 24.0 | 0.0 |
| 30.0 | 0.0 |
| 35.0 | 0.0 |

Detector: Fluorescence

Excitation wavelength: 373 nm

Emission wavelength: 448 nm