SHIMADZU
Excellence in Science

Sialic Acid Stabilizing Kit for Linkage Isomer Discrimination

SialoCapper-ID Kit

SialoCapper™-ID Kit reliably stabilizes sialic acid residues, enabling linkage isomer discrimination.

Our technology prevents the decomposition of sialic acid residues and ionization suppression. Furthermore, makes it possible to discriminate the linkage isomers of sialic acids by mass spectrometry.
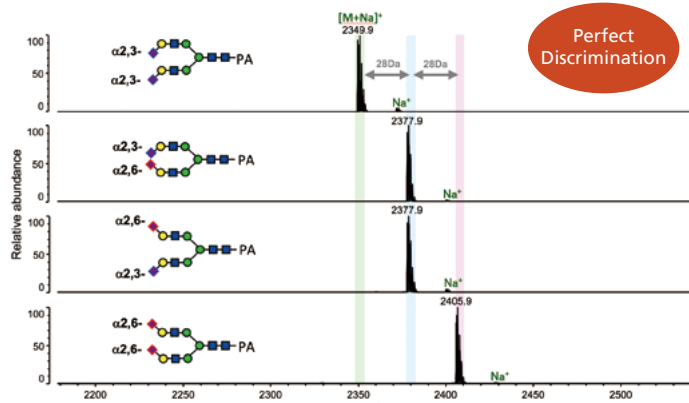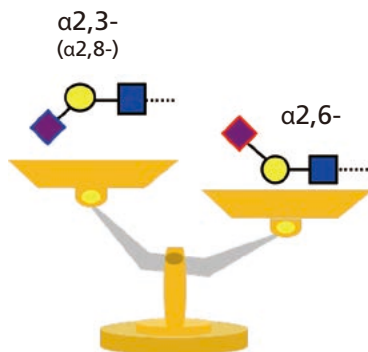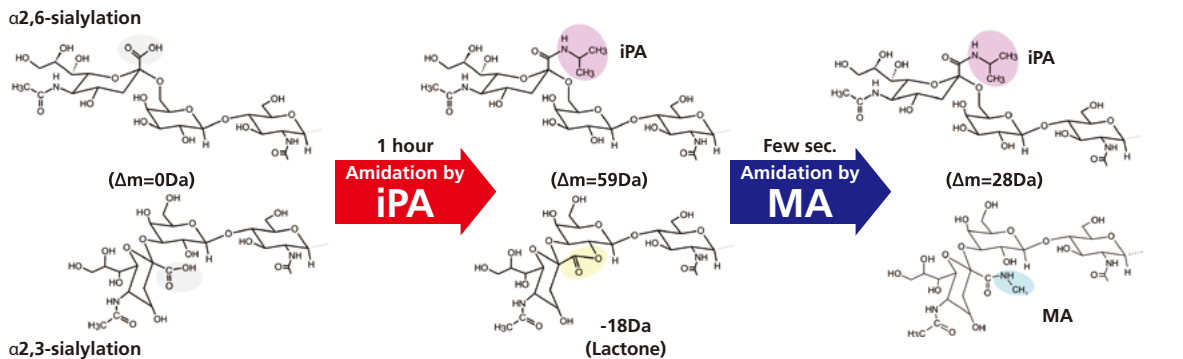
Features

- Simple analysis of sialic acid linkage isomer
- Improving sialoglycan sensitivity
- Versatility and scalability

Sialic Acid Linkage-Specific Alkylamidation (SALSA method)

This is our patented technique that allows stabilization by chemical modification while changing the mass of the sialic acid depending on the linkage types. As a result, the linkage isomers can be discriminated by mass spectrometry. The SialoCapper-ID Kit is a novel reagent kit for glycan pretreatment that simplifies the SALSA procedure.

Reaction scheme of SALSA method

α2,6-sialylation (Δm=0Da)

α2,3-sialylation

1 hour — Amidation by iPA → iPA (Δm=59Da), -18Da (Lactone)

Few sec. — Amidation by MA → iPA (Δm=28Da), MA

α2,3- (α2,8-)   α2,6-

Perfect Discrimination

MALDI mass spectra of labeled glycan standards derivatized with the SialoCapper-ID Kit.
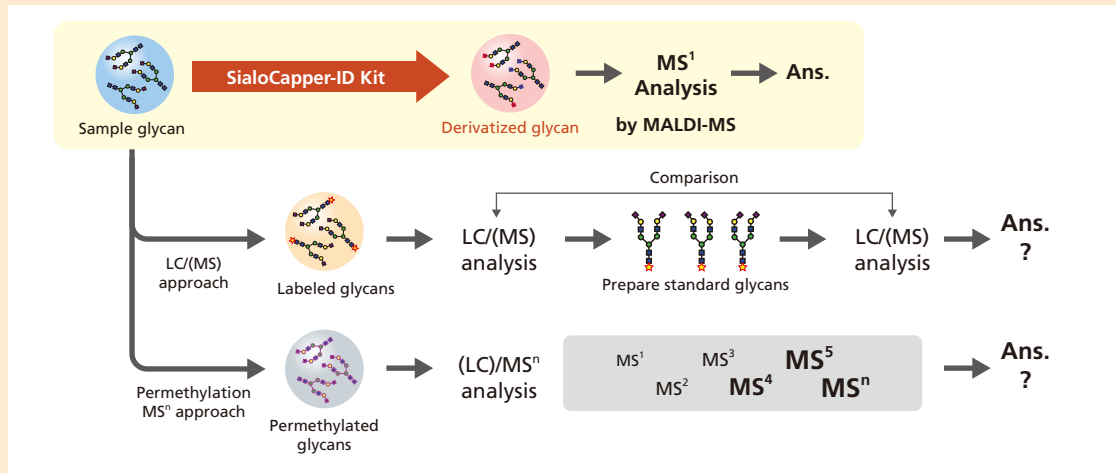
Various types of mass spectrometers can be used for measuring glycans derivatized with the SialoCapper-ID Kit
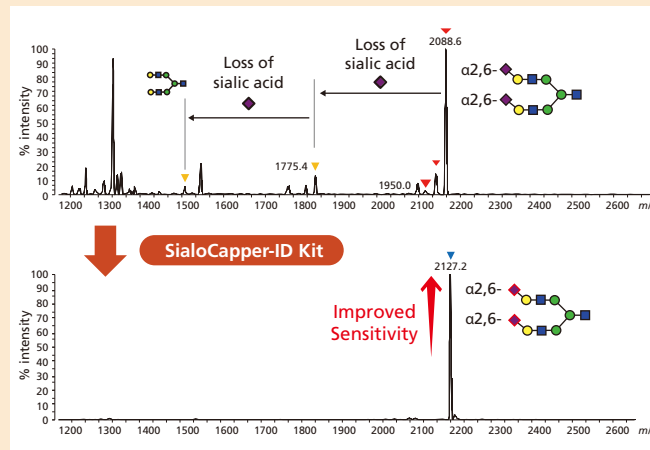
Simple analysis of sialic acid linkage isomer

The linkage types of sialic acid can be determined from MS[1] analysis by using SialoCapper-ID Kit. This eliminates the need for separation by LC, preparation of glycan standards, and MS/MS analysis. This kit enables highly reliable measurement data acquisition and labor-saving experiments.

SialoCapper-ID Kit

Sample glycan → SialoCapper-ID Kit → Derivatized glycan → MS[1] Analysis by MALDI-MS → Ans.

LC/(MS) approach → Labeled glycans → LC/(MS) analysis → Prepare standard glycans (Comparison) → LC/(MS) analysis → Ans. ?

Permethylation MS[n] approach → Permethylated glycans → (LC)/MS[n] analysis → MS[1] MS[2] MS[3] MS[4] MS[5] MS[n] → Ans. ?
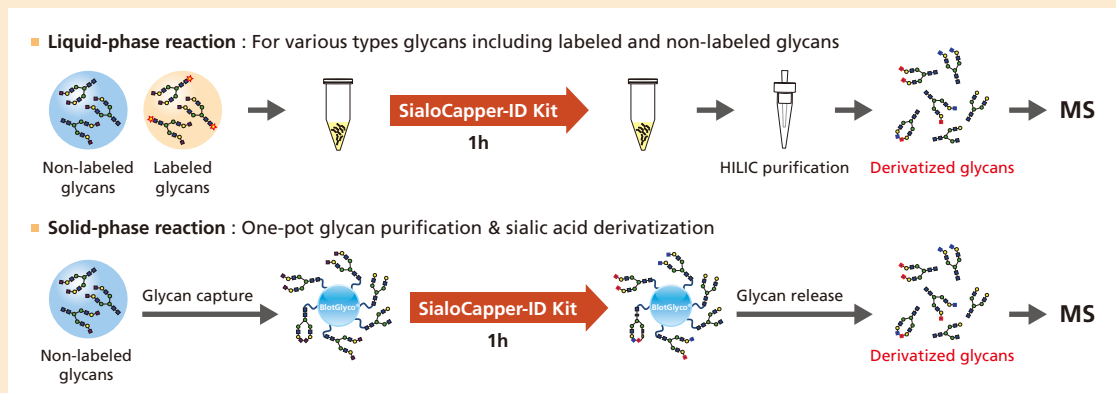
Improving sialoglycan sensitivity

SialoCapper-ID Kit improves sialoglycan sensitivity while stabilizing sialic acids and reducing their degradation. It also makes it easier to measure trace samples such as biological samples. The mass spectrum becomes simpler and glycan analysis becomes easier.

Loss of sialic acid — Loss of sialic acid — 2088.6 — α2,6- α2,6-
1775.4 — 1950.0

SialoCapper-ID Kit — 2127.2 — Improved Sensitivity — α2,6- α2,6-

Versatility and scalability

SialoCapper-ID Kit can be used in combination with previous experimental procedures. Liquid-phase reaction is effective for both labeled and non-labeled glycans. In the solid-phase reaction used in combination with glycan binding beads such as BlotGlyco®, glycan purification and sialic acid derivatization can be achieved simultaneously.

■ **Liquid-phase reaction** : For various types glycans including labeled and non-labeled glycans

Non-labeled glycans / Labeled glycans → SialoCapper-ID Kit 1h → HILIC purification → Derivatized glycans → MS

■ **Solid-phase reaction** : One-pot glycan purification & sialic acid derivatization

Non-labeled glycans → Glycan capture → SialoCapper-ID Kit 1h → Glycan release → Derivatized glycans → MS

Specifications : SialoCapper-ID Kit

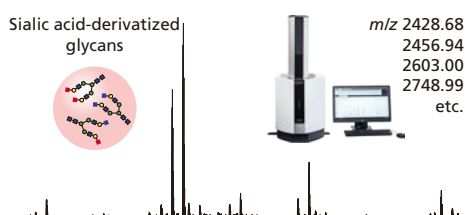| Kit Contents	Reagent A（1 bottle）, B（10 tubes）, C（1 bottle）
Number of samples	Sufficient for 10 experiments/kit • Solid-phase reaction: Sufficient for 10 separate samples/experiment, 100 samples/kit • Liquid-phase reaction: sufficient for 50 separate samples/experiment, 500 samples/kit
Derivatization Targets	Released N-linked glycans (including labeled forms)
Storage Temperature	2-8 °C

• For solid-phase reaction, glycan purification beads are required but not included in SialoCapper-ID Kit.
  Recommended：Sumitomo Bakelite BlotGlyco® BS-45414 (for 10 samples), BS-45415 (for 50 samples), BS-45407 (for 100 samples)
• For liquid-phase reaction, HILIC mode glycan purification columns or tips are required but not included in SialoCapper-ID Kit.

Glycan composition estimation software

Supporting Tool for SialoCapper-ID Kit

The Supporting Tool for SialoCapper-ID Kit can estimate glycan composition from given *m/z* values in the results of mass spectrometry and deal with the mass change of sialic acid residues by sialic acid derivatization such as SALSA method.

Sialic acid-derivatized glycans

m/z 2428.68
2456.94
2603.00
2748.99
etc.

Supporting Tool for SialoCapper-ID Kit

Glycan composition candidates

Recommended specifications for computers

• Operating system: Windows® 10 Pro 64 bit (Japanese/English)
• Memory: More than 8 GB
• Storage: More than 256 GB
• Optical drive: DVD drive

*A computer is not included for installing the software.

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BlotGlyco is a registered trademark of Sumitomo Bakelite Co., Ltd.
Windows is either a registered trademark or a trademark of Microsoft Corporation in the United States and/or other countries.

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