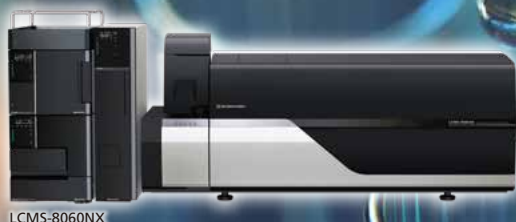


For LabSolutions™ LCMS

LC/MS/MS Method Package for Sugars and Sugar Nucleotides



LCMS-8060NX

Shimadzu now offers a method package that includes pretreatment protocols and analytical methods specifically for sugars and nucleotide sugars.

Sugars are widely used as food ingredients and sources of carbon in animal cell/microorganism culture media, but the bioactivity of sugars can vary significantly depending on the type of sugar.

Sugar nucleotides (nucleotide sugars) are an activated form of monosaccharides that function as a glycosyl donor for glykans, glycolipids, mucopolysaccharides, and other substances within the body. The LC/MS/MS Method Package for Sugars and Sugar Nucleotides includes LC/MS/MS analytical methods with analytical conditions and MS parameter settings optimized for analyzing 25 different sugars, amino sugars, sugar acids and sugar alcohols, 9 different sugar nucleotides, related metabolites, and internal standards. In addition, the instruction manual includes examples of pretreating culture media, supernatants, and intracellular metabolites from cultured cells. With this method package, sugars and sugar nucleotides can be efficiently analyzed by minimizing pretreatments and method considerations.

List of Registered Compounds

Sugar Analysis Method

Sugars	Group	Sugars	Group
Fructose	Hexose	GlcNAC	Amino Sugar
Galactose	Hexose	ManNAC	Amino Sugar
Glucose	Hexose	MurNAC	Amino Sugar
Fucose	Deoxyhexose	Glucuronic acid	Sugar acid
Rhamnose	Deoxyhexose	Gulonic acid	Sugar acid
Sedoheptulose	Heptose	Neu5Ac	Sugar acid
Lactose	Disaccharide	Xylitol	Sugar Alcohol
Maltose	Disaccharide	myo-inositol	Sugar Alcohol
Sucrose	Disaccharide	Galactitol	Sugar Alcohol
Trehalose	Disaccharide	Mannitol	Sugar Alcohol
Raffinose	Trisaccharide	Lactitol	Sugar Alcohol
GlcN (Hexosamine)	Amino Sugar	Maltitol	Sugar Alcohol
GalNAC	Amino Sugar	Glucose- ¹³ C ₆	Internal Standard

Sugar Nucleotide Analysis Method

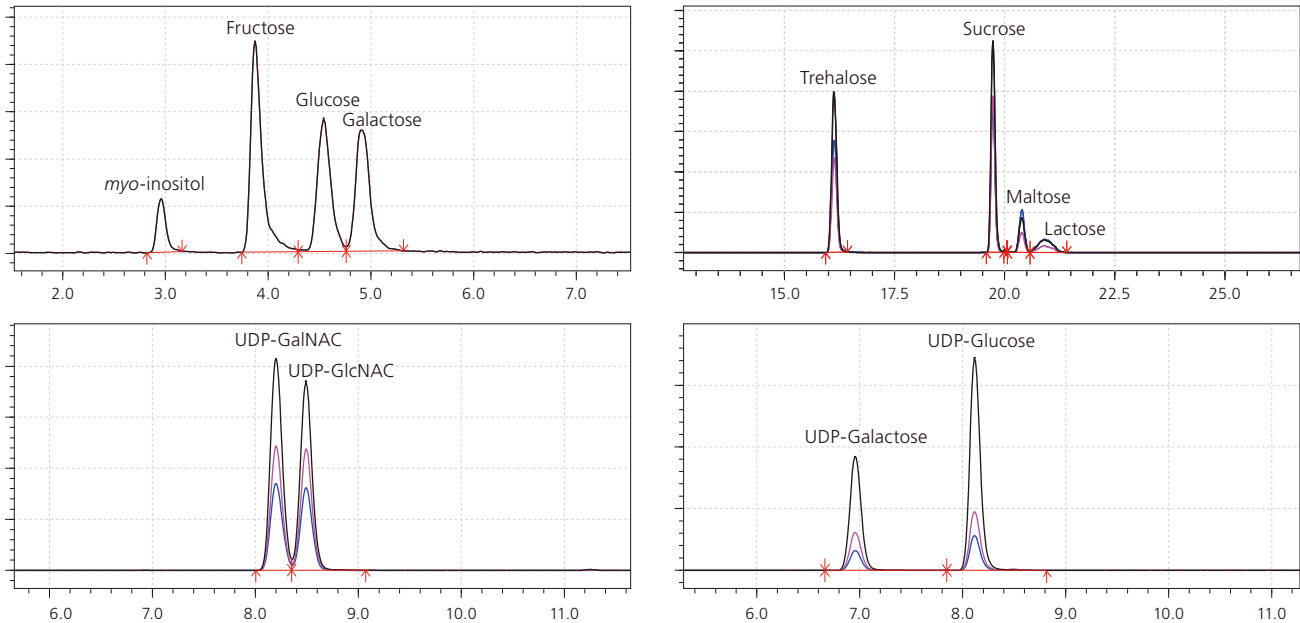
Sugar Nucleotide	Description
ADP-Glucose	Internal Standard
CMP-Neu5Ac	Glycosyl donor in mammalian cell
GDP-Fucose	Glycosyl donor in mammalian cell
GDP-Mannose	Glycosyl donor in mammalian cell
UDP-Galactose	Glycosyl donor in mammalian cell
UDP-Glucose	Glycosyl donor in mammalian cell
UDP-Glucuronic acid	Glycosyl donor in mammalian cell
UDP-GalNAC	Glycosyl donor in mammalian cell
UDP-GlcNAC	Glycosyl donor in mammalian cell
GDP-Glucose	

Others	Description
GlcNAC-1-phosphate/6-phosphate	

LC/MS/MS Method Package for Sugars and Sugar Nucleotides

Analysis Methods Optimized for Separating Isomers

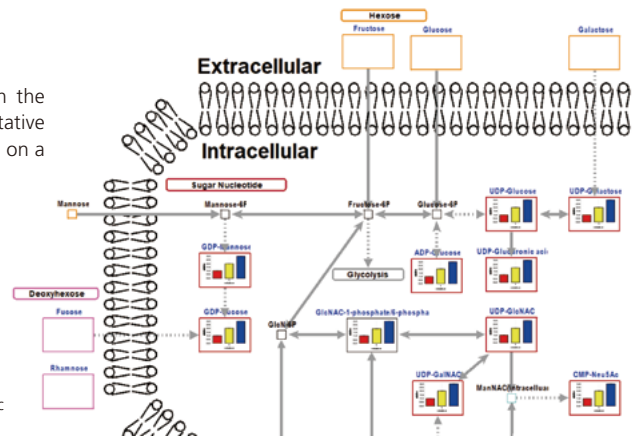
Sugars and sugar nucleotides include multiple isomers. To separate and measure these respective isomers, many analytical conditions must be considered, such as the selection of an analytical column and optimization of the time program. This method package recommends the optimal analytical columns, mobile phases, and analytical conditions for separating respective isomers of monosaccharides, disaccharides, amino sugars, sugar alcohols, and sugar nucleotides, allowing users to begin analysis without the tedious process of reviewing all the possible condition settings.



MRM Chromatograms of Standard Mixture Sample

Support for Analysis Using Multi-omics Analysis Package

This method package includes a metabolic map that is compatible with the Multi-omics Analysis Package. By using both packages together, quantitative changes in the quantities of respective components can be easily visualized on a metabolic map.



Precautions

1. LabSolutions LCMS Ver. 5.120 or later is required.
2. This method package is intended for research use. It may not be used for clinical diagnostic applications.

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