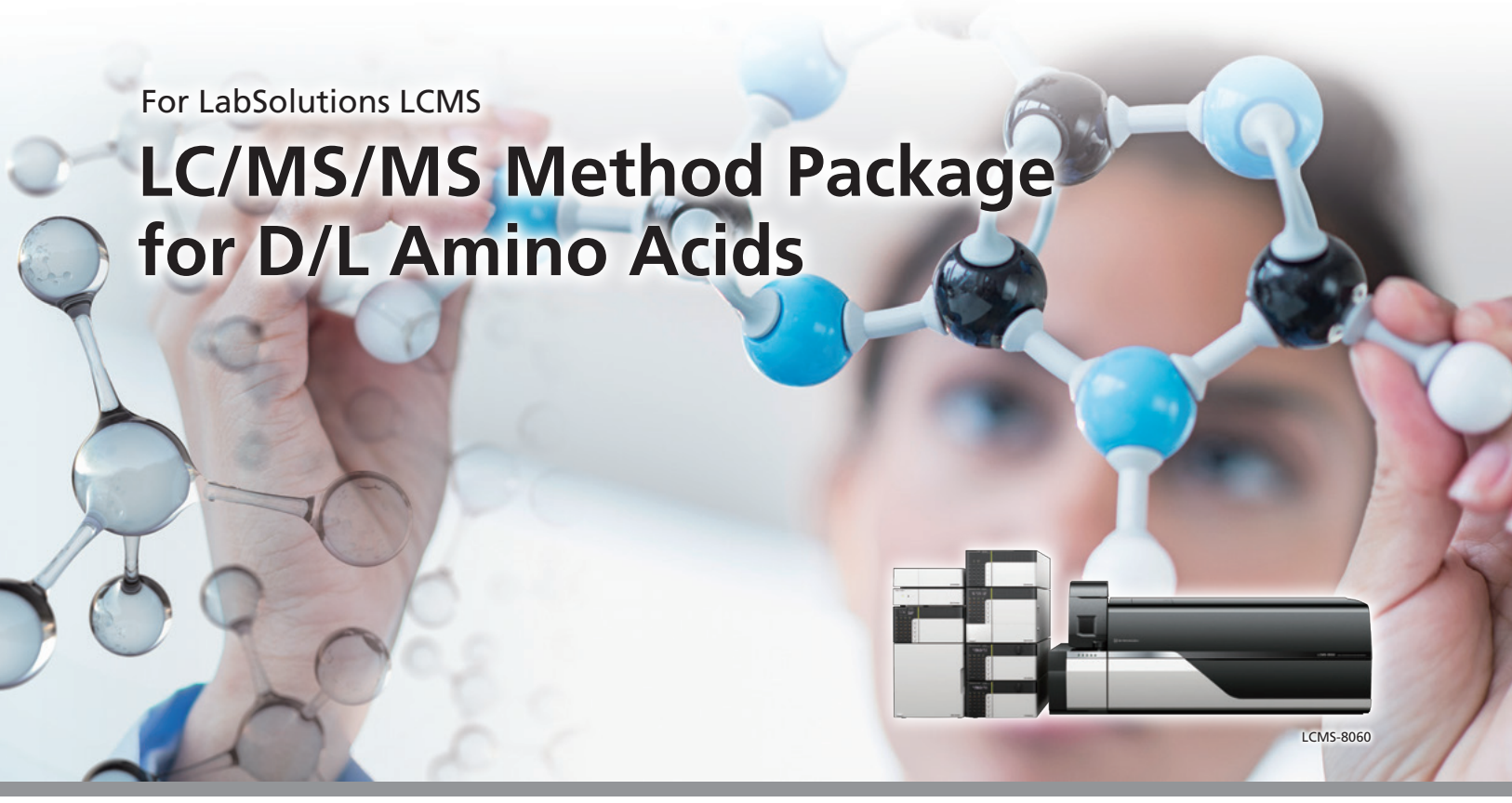
SHIMADZU
Excellence in Science

For LabSolutions LCMS

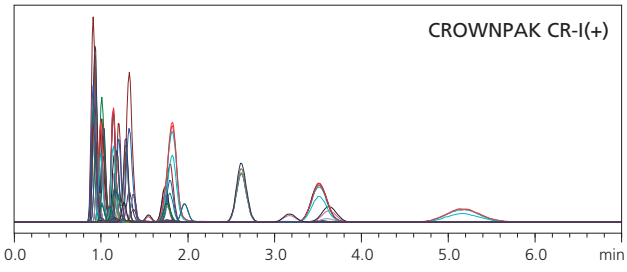
LC/MS/MS Method Package for D/L Amino Acids

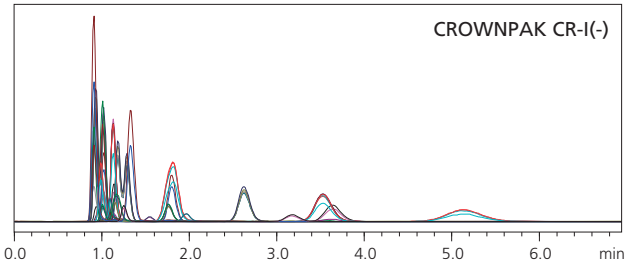


Most important amino acids exist as stereoisomers. D- and L- forms of mirror image isomers, or enantiomers, are named according to their activity on polarized light. By using CROWNPAK CR-I(+) and CR-I(-) columns with chiral stationary phases, the D- and L-forms of amino acids can be analyzed separately. With CR-I(+) elution order is from D- to L-, and with CR-I(-) the elution order is reversed.

In Just Ten Minutes, Chiral Amino Acids Can Be Analyzed Simultaneously

With conventional chiral amino acid analysis, it is necessary to perform derivatization or use very long run times. With this method package, derivatization is not necessary, and high-sensitivity analysis can be performed in a short period of time, bringing efficiency to the chiral separations laboratory.





HPLC Conditions

Column	: CROWNPAK CR-I(+)/(-) (3 mmI.D. × 150 mmL., 5 µm)
Mobile Phase	: Acetonitrile/Ethanol/Water/TFA = 80/15/5/0.5
Flowrate	: 0.6 mL/min
Injection Volume	: 1 µL
Column Temp.	: 25 °C

MS Conditions

Nebulizer Gas Flowrate	: 3.0 L/min
Drying Gas Flowrate	: 15.0 L/min
Heating Gas Flowrate	: 5.0 L/min
Interface Temp.	: 250 °C
DL Temp.	: 250 °C
Heat Block Temp	: 300 °C

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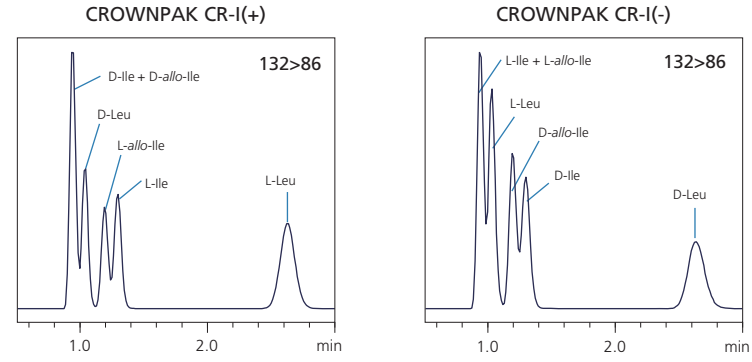
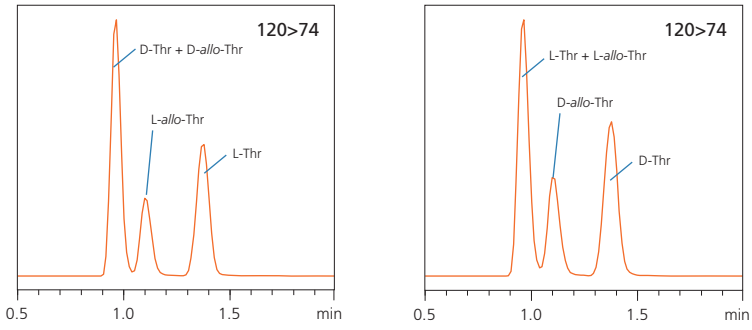
All D/L Amino Acids Can Be Quantified by Column Switching

The physicochemical properties of Glutamine and Lysine, Isoleucine and allo-Isoleucine, Threonine and allo-Threonine are extremely similar. They have virtually the same MS/MS fragmentation patterns, and share many of their MRM transitions. Chromatographic separation is therefore required to analyze them individually by LC-MS/MS. Even if there is coelution on the CR-I(+) column, confirmation can be made by automated switching to a secondary CR-I(-) column.

Analysis of D/L-Isoleucine, D/L-*allo*-Isoleucine, and D/L-Leucine



Analysis of D/L-Threonine, and D/L-*allo*-Threonine



List of Registered Amino Acids

D/L-Alanine	D/L-Cysteine	D/L-Histidine	D/L-Lysine	D/L-Serine	D/L-Tyrosine
D/L-Arginine	D/L-Glutamine	D/L-Isoleucine	D/L-Methionine	D/L-Threonine	D/L-Valine
D/L-Asparagine	D/L-Glutamic acid	D/L-*allo*-Isoleucine	D/L-Phenylalanine	D/L-*allo*-Threonine	
D/L-Aspartic acid	Glycine	D/L-Leucine	DL-Proline	D/L-Tryptophane	

Precautions

1. DL-Proline is a secondary amine, so it cannot be separated with these analysis conditions.
2. LabSolutions LCMS Ver. 5.86 or later is required.

CROWNPAK CR-I(+) and CR-I(-) are products of Daicel Corporation.

Shimadzu Corporation

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First Edition: March 2017, Printed in Japan 3655-12611-20AIT