Product No: JSM-CL-12000

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Omega Fatty Acids in Serum GC-MS Analysis Kit

Polyunsaturated fatty acids (PUFA) have important physiological functions and are key regulators of cell membrane properties. Among the PUFAs, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) compounds are known to have beneficial effects such as lowering blood lipid levels, reducing immune problems, inhibiting thrombogenesis, improving cognitive functions, alleviating depression and limiting tumor growth. In addition, observational studies have shown that omega-3 PUFA intake can prevent the occurrence and progression of multiple cardiovascular diseases. Morever, although the importance of intake of omega-6 fatty acids at the levels necessary for body health is known, changes in food consumption habits can lead to increases in the intake of proinflammatory ω-6 fatty acids precursors. Measurements for clinical benefit; It contains the Omega-3 Index consisting of EPA + DHA, EPA / AA ratio, EPA quantitation and DHA quantitation. In addition, determining the ratio of ω-6 / ω-3 is of great importance. Because a high ω-6 / ω-3 ratio increases the pathogenesis of many chronic diseases such as cardiovascular disease, cancer, inflammatory and autoimmune disease, rheumatoid arthritis, asthma, while a low-6 / ω-3 ratio (high ω-3 level) has negative effects. can suppress.

Highlights Of The Analysis Kit

- Total run time is 9.3 min.
- The Jasem method accurately analyses esterified Omega-3 and 6 Fatty Acids in the serum with single sample preparation
- Consuming small volume of patient's sample
- Long life span of GC column

Parameters

Omega-3 : Eicosapentanenoic Acid (EPA) C20:5 n-3, Docosahexanenoic Acid (DHA) C22:6 n-3, Alpha-Linolenic Acid (ALA) C18:3 n-3.
Omega-6 : Linoleic Acid (LA) C18:2 n-6, Arachidonic Acid (AA) C20:4 n-6, Gamma-Linolenic Acid (GLA) C18:3 n-6.

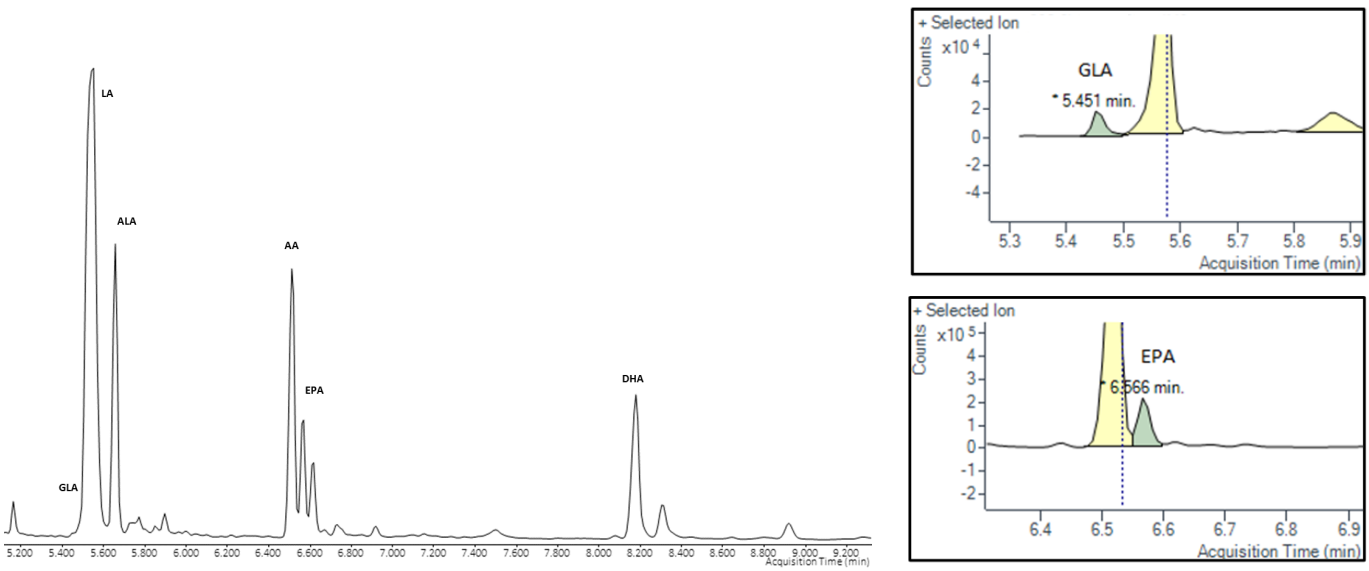
Sample Type

Serum

Sample Preparation

1	Pipette 100 µl serum sample into a glass vial
2	Reagent mix prepare into the volumetric flask on ice in fume hood. Reagent 3 is added drop-wise while swirling on R1 and R2, vortex for 10 sec.
3	300 µl of Reagent-mix, vortex for 15 sec.
4	Put the vial into the empty glass tube. İncubate in water bath at 90 min 70°C
5	After cooling to room temperature, the methyl derivatives are transferred in eppendorf, extracted 800 µl Reagent 4 and centrifuge at 3500rpm 2 min.
6	Pipet 600 µl extracted serum samples are dried under stream of nitrogen, dissolved 75 µl Reagent 4, and vortex 10 sec.
7	Transfer the final solution into the insert of HPLC vials

Example Chromatogram



Scan/SIM Mode Chromatogram of Omega 3 and Omega 6 Fatty Acids.

Method Performance

Compound	Linearity (R^2)	LOQ (nmol/mL)	Recovery (RSD%)	Repeatability (RSD%)
Eicosapentanenoic Acid (EPA)	0.9998	0,65	95,3	1,146
Docosahexanenoic Acid (DHA)	0,9991	1,95	92,5	1,236
Alpha-Linolenic Acid (ALA)	0,9994	1,2	96,5	2,128
Linoleic Acid (LA)	0,9950	2,5	105,3	2,185
Arachidonic Acid (AA)	0,9991	3,5	90,5	1,236
Gamma-Linolenic Acid (GLA)	0,9989	3,0	103,4	1,563

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