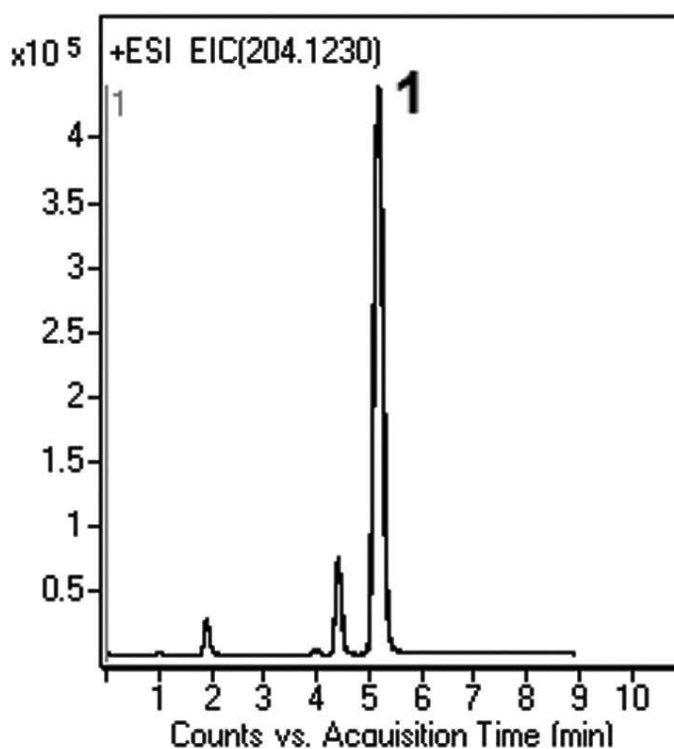


Acetyl-L-Carnitine in Plasma Analyzed with LCMS - AppNote

Spiked Plasma Samples with Acetyl-L-Carnitine

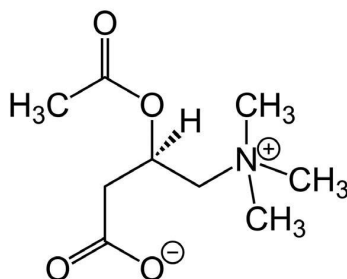
The Method in this Application Note was designed to be suitable for the routine analysis of Plasma Samples obtained from animal and human Pharmacokinetic studies in which Acetyl-L-Carnitine (ALC) is administered.

The calibration curve prepared for the Plasma Samples showed good Linearity ($R^2 = 0.999$) and the Precision was good with low %RSD (0.2 and below). The advantages of this Method over other published LCMS methods are the short Equilibration Time between runs and the Repeatability (*3 overlaid injections are presented in the Chromatogram below*). Also, this Method uses high organic content in the Mobile Phase, which is more suitable for MS and offers better ionization and improved signal to noise.



Peak:

Acetyl-L-Carnitine (ALC) 204.1230 m/z [M+H]⁺



Method Conditions

Column: Cogent Diamond Hydride™, 4µm, 100Å

Catalog No.: [70000-15P-2](#)

Dimensions: 2.1 x 150mm

Mobile Phase:

A: DI Water with 0.1% Formic Acid

B: Acetonitrile with 0.1% Formic Acid

Gradient:

Time (minutes)	%B
0	80
1	80
5	30
7	30
8	80

Post Time: 3 minutes

Injection vol.: 1µL

Flow rate: 0.4mL / minute

Detection: ESI – POS - Agilent 6210 MSD TOF Mass Spectrometer

Sample Preparation: Plasma from healthy individuals was spiked with an ALC standard solution and prepared for injections as described by Tallarico et al. [1]. To prepare standard curves dialyzed Plasma was used, to which known amounts of the analyte were added.

t₀ : 0.9 minutes

Note: ALC is used to improve mitochondrial function. ALC was proposed as an effective drug to be supplement in peripheral arterial disease so there is a need to study and fully understand the Pharmacokinetics of administered ALC.

[1] Carlo Tallarico, Silvia Pace, and Antonio Longo, *Rapid Communications in Mass Spectrometry*, Vol. 12, 403–409 (1998).



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