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 *(R2 = 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.

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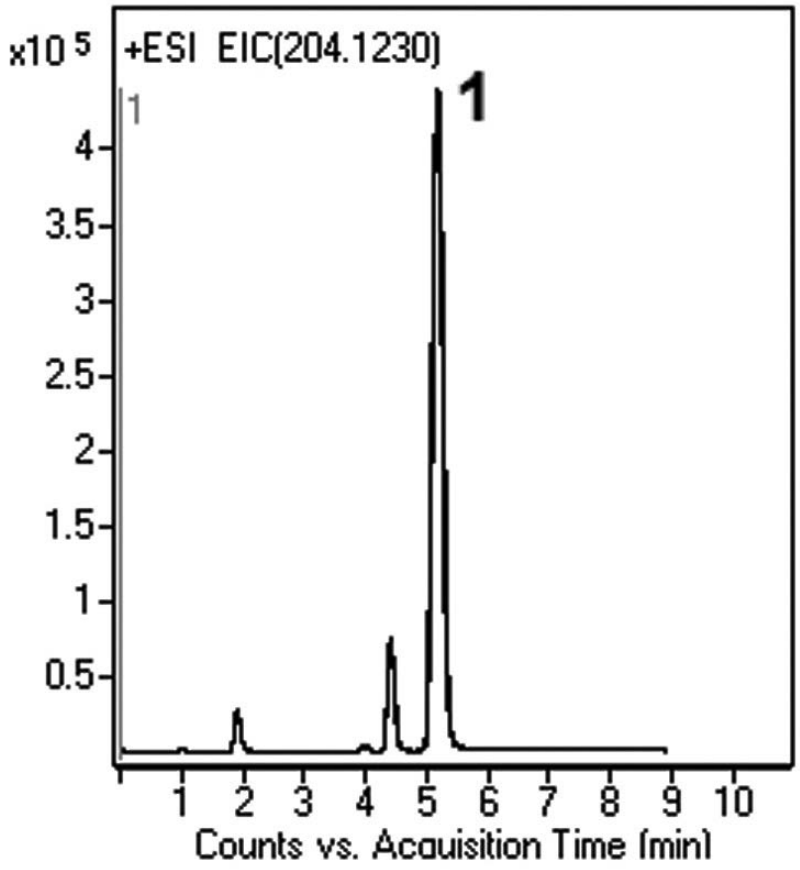

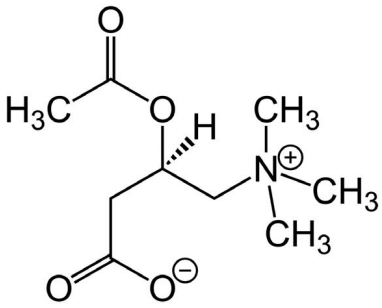

Peak:

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

Method Conditions

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

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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.
t_0: 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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