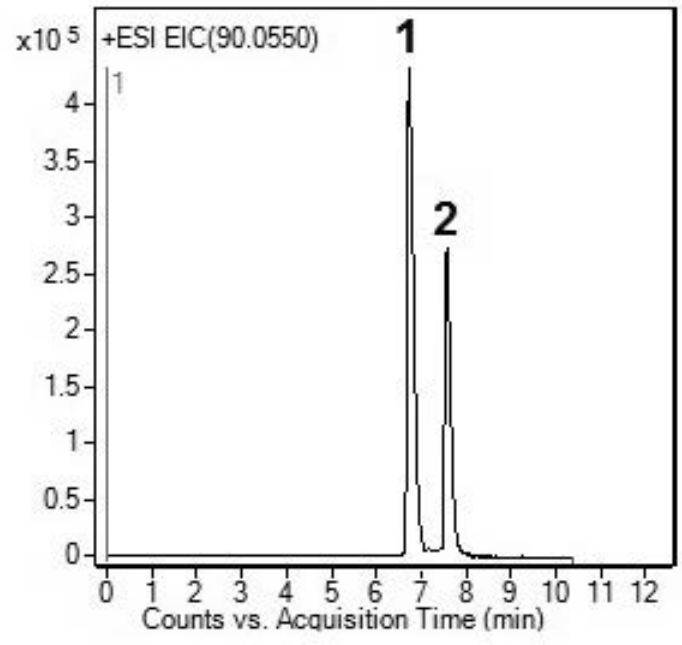
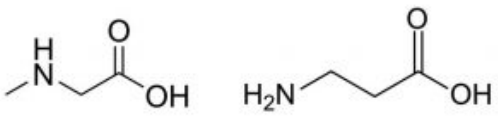
Sarcosine Analyzed with LCMS – AppNote

Separation of Potential Urine Biomarker from Isobaric ß-Alanine

This developed LCMS method can separate Sarcosine from Beta- Alanine in serum and urine samples without using labor intensive sample derivatization. Since Sarcosine is considered a potential biomarker for prostate cancer risk and aggressiveness, it is essential to resolve and accurately quantify this compound in the presence of isobaric (same m/z) Beta-Alanine.

The developed method is Sensitive, Specific, Quantitative, and Reproducible (*%RSD = 0.1*). It can be used in large scale studies with numerous samples (high throughput of the method due to simple sample preparation).





Peaks:

1. Sarcosine
2. ß-Alanine

Method Conditions

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

Catalog No.: 70000-15P-2

Dimensions: 2.1 x 15mm

Mobile Phase:

A: 50% Isopropyl Alcohol / 50% DI Water / 0.1% Acetic Acid

B: 97% Acetonitrile / 3% DI Water / 0.1% Acetic Acid

Gradient:

Time *(minutes)*	%B
0	75
3	75
4	65
5	65
10	20
12	75

Temperature: 50˚C

Post Time: 5 minutes

Flow rate: 0.6mL / minute

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

Injection vol.: 1µL

Sample Preparation: 10mg / L each of Sarcosine and Beta-Alanine in 50:50 A:B

Note: *When Reversed Phase Columns were evaluated for their ability to separate Sarcosine from Beta-Alanine, both compounds eluted at the solvent front and were not separated. To achieve separation, a very intensive sample preparation has to be employed (e.g. derivatization) when using RP methods.*

Attachment

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