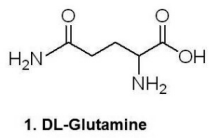
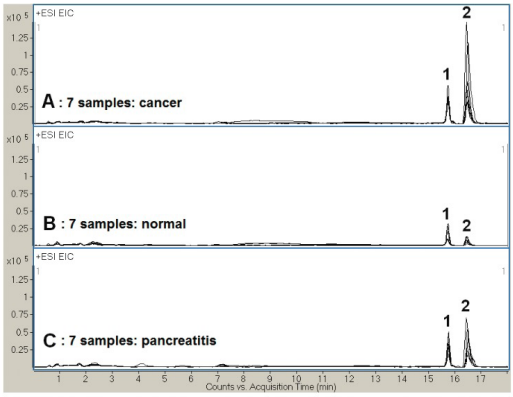
# Glutamine and Lysine Determination

## Two Isobaric Amino Acids in Saliva



1. DL-Glutamine

2. DL-Lysine




**Notes:** Adapted from: "Analysis of Hydrophilic Metabolites in Physiological Fluids by HPLC-MS using a Silica Hydride- Based Stationary Phase", J.J. Pesek, M.T. Matyska, J.A. Loo, S.M. Fischer, T.R. Sana, J. Sep. Sci., 32 (2009) 2200- 2208.

## Method Conditions

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

**Catalog No.:** 70000-15P-2

**Dimensions:** 2.1 x 150 mm

**Solvents:** A: DI $H_2O$ + 10 mM ammonium acetate
B: 98% Acetonitrile/ 2% 10 mM ammonium acetate

**Gradient:**

| time (min.) | %B |
|---|---|
| 0 | 100 |
| 14 | 60 |
| 14.1 | 5 |

**Temperature:** 25°C

**Post Time:** 5 min

**Injection vol.:** 1µL

**Flow rate:** 0.4 mL/min

**Detection:** ESI – pos - Agilent 6210 MSD TOF mass spectrometer

**Peaks:** 1. D,L - glutamine $(M+H)^+$, 147.0764 m/z
2. D,L - lysine $(M+H)^+$, 147.1134 m/z

$t_0$: 0.8 min

## Discussion

The chromatogram above shows an interesting aspect of analyzing real patient samples for a pair of metabolites: glutamine and lysine. Figure A represents 7 samples taken from patients with cancer; Figure C shows injections of samples from 7 patients with pancreatitis while Figure B represents 7 samples from a control group of healthy people. In the samples studied generally the lysine peak intensity was approximately equal to or greater than the glutamine peak intensity in cancer patients while in the normal patients the lysine peak was significantly lower in intensity than the glutamine peak.

Please note the reproducibility of the analysis (retention times) for all samples, despite the variability in the concentration level of the two amino acids in saliva.



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