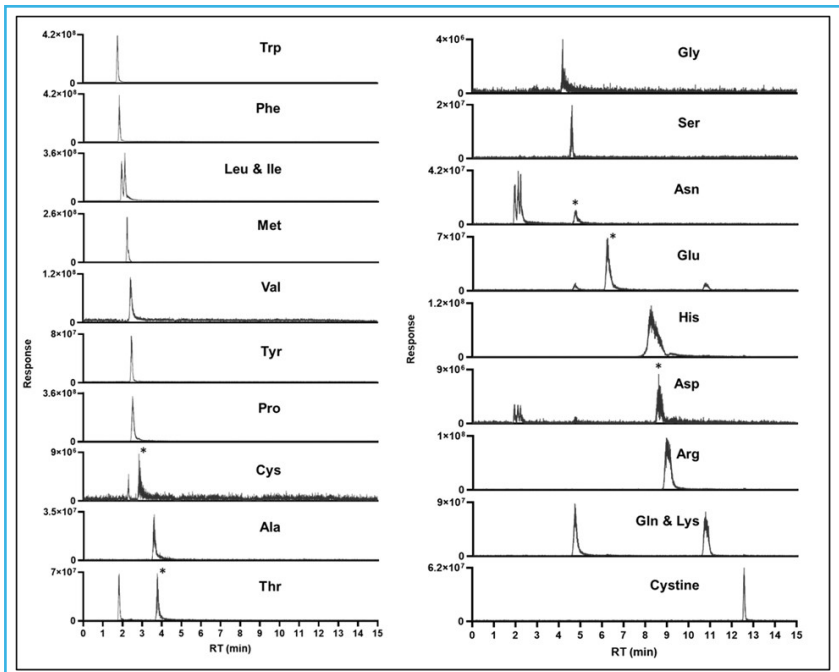




### Separation of Amino Acids by HILIC/ Single Quadrupole Mass Detection

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Representative spectra of 21 standard amino acids separated on a HALO® Glycan column are shown. Amino acid isomers (e.g., Leu, Ile), as well as amino acids: Gln and Lys, are detected under the same mass channels ( $m/z$  132.1 and 147.1, respectively). The elution order for the isomers is Leu first, followed by Ile. The target amino acid is specified with an asterisk (\*) symbol in chromatograms showing multiple peaks (e.g., Cys, Thr, Asn, Glu, Asp).

#### PEAK IDENTITIES:

Amino Acid	Acronym	Monoisotopic mass <sup>ref 2</sup> [M]	SIR mass <sup>ref 6</sup> [M+H <sup>+</sup> ]
Alanine	Ala, A	89.1	90
Arginine	Arg, R	174.2	175
Asparagine	Asn, N	132.1	133
Aspartic acid	Asp, D	133.1	134
Cysteine	Cys, C	121.2	122
Cystine <sup>ref 7</sup>	n/a	240.3 <sup>ref 7</sup>	241
Glutamic acid	Glu, E	147.1	148
Glutamine	Gln, Q	146.2	147
Glycine	Gly, G	75.1	76
Histidine	His, H	155.2	156
Isoleucine	Ile, I	131.2	132
Leucine	Leu, L	131.2	132
Lysine	Lys, K	146.2	147
Methionine	Met, M	149.2	150
Phenylalanine	Phe, F	165.2	166
Proline	Pro, P	115.1	116
Serine	Ser, S	105.1	106
Threonine	Thr, T	119.1	120
Tryptophan	Trp, W	204.2	205
Tyrosine	Tyr, Y	181.2	182
Valine	Val, V	117.1	118





## Separation of Amino Acids by HILIC/ Single Quadrupole Mass Detection

### TEST CONDITIONS:

**Column:** HALO 90 Å Glycan, 2.7  $\mu\text{m}$ , 2.1 x 100 mm

**Part Number:** 92922-605

**Mobile Phase A:** 85/15 Acetonitrile/ 10 mM ammonium formate, 0.15% Formic Acid

**Mobile Phase B:** 10 mM ammonium formate pH 3.0, 0.15% Formic Acid

Gradient:	Time	%B
	0.0	0.0
	10.0	5.0
	15.0	37.5
	15.5	95.0
	20.0	95.0
	20.5	0.0
	25.0	0.0

**Flow Rate:** 0.4 mL/min

**Column Temperature:** 30 °C

**Sample Manager Temperature:** 5  $\pm$  3 °C

**Injection Volume:** 1  $\mu\text{L}$

**Data Courtesy of:** Neshita Kipuw, Pfenex Expression Technology

### MS CONDITIONS:

**Ionization Mode:** ESI

**Polarity:** Positive

**Full Scan:** m/z 50-1000

**Cone Voltage:** 15 V

**Gas Flow Pressure:** 70-100 psi

