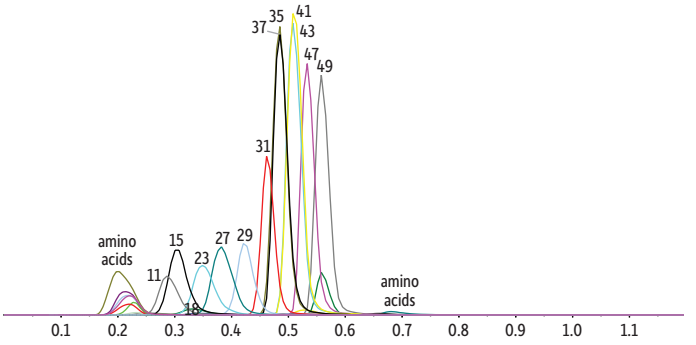
22 Acylcarnitines and 13 Amino acids (Endogenous) in Dried Blood Spots with 16 Deuterated Internal Standards on Raptor HILIC-Si EXP Guard Cartridge Column by LC-MS/MS

- **Fast, 1-min analysis of 22 acylcarnitines and 13 amino acids in dried blood without derivatization.**
- **Raptor HILIC-Si guard cartridge column provides better retention, selectivity, specificity, and sensitivity with reduced matrix interference compared to flow injection analysis.**

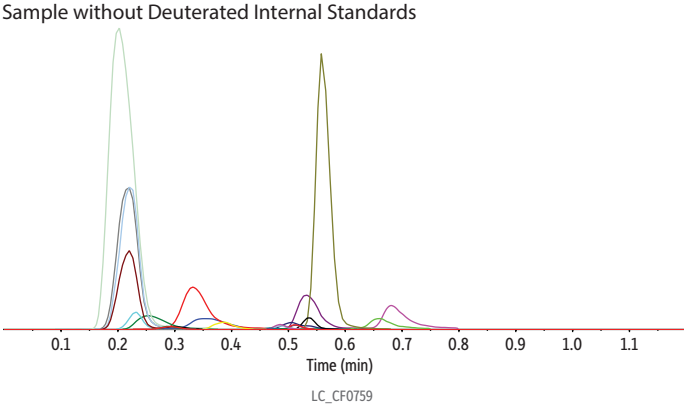
	Peaks	tR (min)	Precursor Ion	Product Ion
1.	Phenylalanine	0.20	166.0	120.1
2.	Leucine	0.21	132.1	86.0
3.	Leucine-d3	0.21	135.2	89.1
4.	Isoleucine	0.21	132.1	86.1
5.	Tyrosine	0.22	182.1	91.0
6.	Methionine	0.24	150.1	56.1
7.	Methionine-d3	0.24	153.2	107.1
8.	Valine	0.27	118.1	72.0
9.	C20-Eicosanoyl-L-carnitine	0.27	456.4	85.1
10.	C18-Stearoyl-L-carnitine	0.28	428.3	85.1
11.	C18-Stearoyl-L-carnitine-d3	0.29	431.4	85.1
12.	C18:1 Oleoyl-L-carnitine	0.29	426.4	85.1
13.	C18:2 Linoleoyl-L-carnitine	0.30	424.3	85.1
14.	C16-Palmitoyl-L-carnitine	0.30	400.3	85.1
15.	C16-Palmitoyl-L-carnitine-d3	0.31	403.3	85.1
16.	C16:1 Palmitolelyl-L-carnitine	0.31	398.3	85.1
17.	C14-Myristoyl-L-carnitine	0.32	372.3	85.1
18.	C14-Myristoyl-L-carnitine-d3	0.33	375.3	85.1
19.	C14:1 Tetradecenoyl-L-carnitine	0.33	370.3	85.1
20.	C14:2-Tetradecadienoyl-L-carnitine	0.33	368.3	85.1
21.	Proline	0.33	116.0	70.1
22.	C12-Lauroyl-L-carnitine	0.35	344.3	85.1
23.	C12-Lauroyl-L-carnitine-d3	0.35	347.3	85.1
24.	Alanine	0.36	90.1	44.1
25.	Alanine-d4	0.35	94.1	48.1
26.	C10-Decanoyl-L-carnitine	0.38	316.3	85.1
27.	C10-Decanoyl-L-carnitine-d3	0.39	319.2	85.1
28.	C8-Octanoyl-L-carnitine	0.43	288.3	85.1
29.	C8-Octanoyl-L-carnitine-d3	0.43	291.2	85.1
30.	C7-Heptanoyl-L-carnitine	0.45	274.2	85.1
31.	C6-Hexanoyl-L-carnitine-d3	0.46	263.2	85.1
32.	C6-Hexanoyl-L-carnitine	0.47	260.2	85.1
33.	Glutamine	0.45	147.1	84.1
34.	C5-Valeryl-L-carnitine	0.48	246.2	85.1
35.	C5-Valeryl-L-carnitine-d3	0.49	249.1	85.1
36.	C5-Isovaleryl-L-carnitine	0.49	246.1	85.1
37.	C5-Isovaleryl-L-carnitine-d3	0.49	249.2	85.1
38.	2-Methylbutyryl-L-carnitine	0.49	246.2	85.1
39.	C5:1-Tiglyl-L-carnitine	0.50	244.2	85.1
40.	C4-Butyryl-L-carnitine	0.51	232.2	85.1
41.	C4-Butyryl-L-carnitine-d3	0.51	235.2	85.1
42.	C4-Isobutyryl-L-carnitine	0.51	232.1	85.1
43.	C4-Isobutyryl-L-carnitine-d3	0.51	235.1	85.1
44.	Citrulline	0.51	176.1	113.1
45.	Glutamic acid	0.55	148.1	83.9
46.	C3-Propionyl-L-carnitine	0.54	218.1	85.1
47.	C3-Propionyl-L-carnitine-d3	0.54	221.2	85.1
48.	C2-Acetyl-L-carnitine	0.56	204.1	85.1
49.	C2-Acetyl-L-carnitine-d3	0.56	207.1	85.1
50.	Arginine	0.66	175.2	70.1
51.	Ornithine	0.69	133.1	70.1

All analytes were present endogenously at varying concentrations in whole blood, except the deuterated internal standards.

TIC: Endogenous Acylcarnitines and Amino Acids in Dried Blood Spot Sample with Deuterated Internal Standards



XIC: Endogenous Acylcarnitines and Amino Acids in Dried Blood Spot Sample without Deuterated Internal Standards



Column Raptor HILIC-Si EXP guard cartridge column (cat.# 9310A0252)
Dimensions: 5 mm x 2.1 mm ID
Particle Size: 2.7 µm
Temp.: 45 °C
Standard/Sample
Diluent: 85:15 Acetonitrile:water (v/v)
Conc.: Endogenous levels
Inj. Vol.: 2.0 µL
Mobile Phase
A: 30 mM Ammonium formate in water
B: Acetonitrile

Time (min)	Flow (mL/min)	%A	%B
0.00	0.5	15	85
0.4	0.5	70	30
0.41	0.5	15	85
1.2	0.5	15	85

Detector MS/MS
Ion Source: Electrospray
Ion Mode: ESI+
Instrument UHPLC
Sample Preparation 50 µL of whole blood was spotted on to Whatman 903 neonatal protein saver cards, which were then dried for 1 hour at room temperature. A 3.0 mm disk (~3.0 µL whole blood) was punched out of the dried spot and into a 2.0 mL Eppendorf tube. 200 µL of 85:15 acetonitrile:water (v/v) that was fortified with known concentrations of stable isotope-labeled internal standards was added, and then the sample was vortexed and incubated for 20 minutes at room temperature on a microplate shaker at a speed of 400 rpm. The sample was then centrifuged for 10 minutes at 4000 rpm, and 150 µL of the supernatant was filtered using a Thomson SINGLE StEP Nano filter vial (cat.# 25882) prior to LC-MS/MS analysis.