

## 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

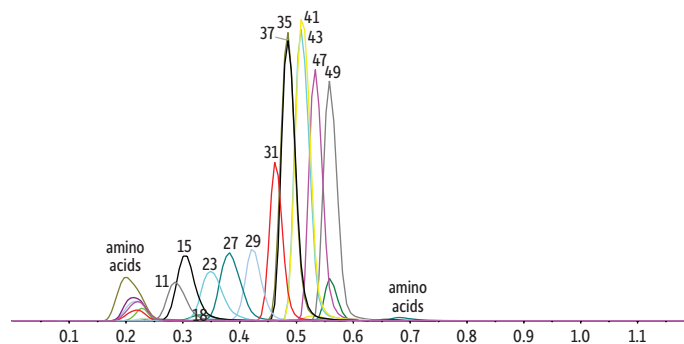
- Fast, 1-min analysis of 22 acylcarnitines and 13 amino acids in dried blood without derivatization.
- Raptor HILIC-Si guard cartridge column provides better retention, selectivity, specificity, and sensitivity with reduced matrix interference compared to flow injection analysis.

**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  
**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

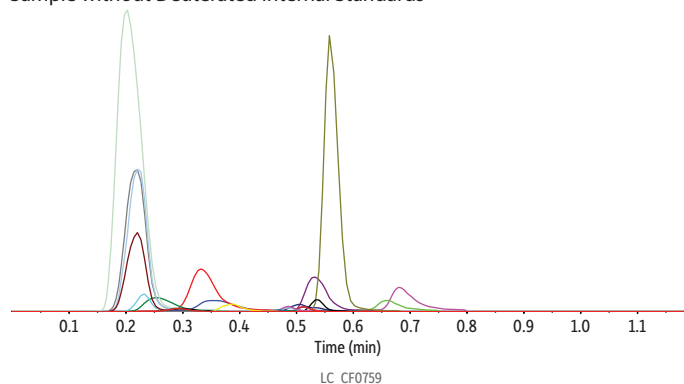
Time (min)	Flow (mL/min)	%A	%B
0.00	0.5	15	85
0.4	0.5	70	30
0.41	0.5	15	85
1.2	0.5	15	85

**Detector** MS/MS  
**Ion Source:** Electrospray  
**Ion Mode:** ESI+  
**Instrument** UHPLC  
**Notes** 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.

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



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

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