

**Reference Material:** MSMS1 Linearity

**Expiration Date:** September 2027

**Analysis Method:** LC-MS/MS non-kit

**Material Storage:** -20°C ± 10°C

**Units:** µmol/L blood

Analyte	Lot	Enrichment	Mean Value	95% LL	95% UL
Alanine (Ala)	C20251	0	136.1	71.9	200.4
Alanine (Ala)	C20252	12.5	128.2	64.0	192.4
Alanine (Ala)	C20253	25	142.9	83.7	202.0
Alanine (Ala)	C20254	50	165.2	99.8	230.6
Alanine (Ala)	C20255	125	193.5	116.2	270.7
Alanine (Ala)	C20256	250	271.6	160.8	382.3
Alanine (Ala)	C20257	500	376.3	203.5	549.2
Alanine (Ala)	C20258	750	488.6	337.1	640.0
Arginine (Arg)	C20251	0	12.4	5.8	18.9
Arginine (Arg)	C20252	4.375	14.3	11.0	17.7
Arginine (Arg)	C20253	8.75	18.8	14.8	22.8
Arginine (Arg)	C20254	17.5	25.3	19.7	31.0
Arginine (Arg)	C20255	43.75	48.4	37.2	59.5
Arginine (Arg)	C20256	87.5	85.6	67.7	103.4
Arginine (Arg)	C20257	175	154.0	117.4	190.6
Arginine (Arg)	C20258	262.5	223.0	176.6	269.4
Argininosuccinic acid (ASA)	C20251	0	5.6	0.0	11.4
Argininosuccinic acid (ASA)	C20252	3.125	5.1	1.5	8.6
Argininosuccinic acid (ASA)	C20253	6.25	7.7	3.1	12.3
Argininosuccinic acid (ASA)	C20254	12.5	11.9	3.9	19.9
Argininosuccinic acid (ASA)	C20255	31.25	26.0	14.3	37.7
Argininosuccinic acid (ASA)	C20256	62.5	46.1	18.1	74.0
Argininosuccinic acid (ASA)	C20257	125	85.8	29.1	142.5
Argininosuccinic acid (ASA)	C20258	187.5	125.2	46.1	204.3
Citrulline (Cit)	C20251	0	12.6	8.8	16.3
Citrulline (Cit)	C20252	18.75	25.7	18.6	32.9
Citrulline (Cit)	C20253	37.5	43.3	29.9	56.7
Citrulline (Cit)	C20254	75	75.3	57.0	93.6
Citrulline (Cit)	C20255	187.5	164.3	117.9	210.8
Citrulline (Cit)	C20256	375	315.2	201.1	429.3
Citrulline (Cit)	C20257	750	614.6	378.4	850.8
Citrulline (Cit)	C20258	1125	912.3	464.1	1360.5

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Analyte	Lot	Enrichment	Mean Value	95% LL	95% UL
Glycine (Gly)	C20251	0	98.2	23.5	173.0
Glycine (Gly)	C20252	18.75	128.8	43.7	213.9
Glycine (Gly)	C20253	37.5	146.2	61.7	230.7
Glycine (Gly)	C20254	75	172.9	80.3	265.5
Glycine (Gly)	C20255	187.5	222.2	72.5	372.0
Glycine (Gly)	C20256	375	322.4	172.5	472.4
Glycine (Gly)	C20257	750	491.9	264.4	719.5
Glycine (Gly)	C20258	1125	662.5	361.8	963.1
Homocysteine (Hcy)	C20251	0	6.9	4.2	9.6
Homocysteine (Hcy)	C20252	1.25	7.0	4.5	9.6
Homocysteine (Hcy)	C20253	2.5	8.1	5.4	10.8
Homocysteine (Hcy)	C20254	5	9.5	5.9	13.1
Homocysteine (Hcy)	C20255	12.5	13.9	9.3	18.4
Homocysteine (Hcy)	C20256	25	21.3	14.4	28.2
Homocysteine (Hcy)	C20257	50	35.4	24.4	46.3
Homocysteine (Hcy)	C20258	75	54.7	41.2	68.1
Leucine (Leu)	C20251	0	50.9	38.6	63.1
Leucine (Leu)	C20252	25	66.0	53.4	78.5
Leucine (Leu)	C20253	50	86.7	66.7	106.8
Leucine (Leu)	C20254	100	125.2	103.8	146.6
Leucine (Leu)	C20255	250	230.9	199.9	261.8
Leucine (Leu)	C20256	500	406.7	327.9	485.4
Leucine (Leu)	C20257	1000	689.7	531.6	847.8
Leucine (Leu)	C20258	1500	983.4	816.1	1150.8
Methionine (Met)	C20251	0	6.6	4.9	8.3
Methionine (Met)	C20252	6.25	10.6	8.7	12.5
Methionine (Met)	C20253	12.5	16.2	13.2	19.1
Methionine (Met)	C20254	25	26.1	20.9	31.3
Methionine (Met)	C20255	62.5	56.0	44.7	67.4
Methionine (Met)	C20256	125	114.5	96.5	132.4
Methionine (Met)	C20257	250	218.3	180.4	256.2
Methionine (Met)	C20258	375	342.3	289.9	394.8

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Analyte	Lot	Enrichment	Mean Value	95% LL	95% UL
N-Acetyltyrosine (NAT)	C20251	0	1.5	0.0	3.5
N-Acetyltyrosine (NAT)	C20252	7.5	6.9	5.5	8.2
N-Acetyltyrosine (NAT)	C20253	15	13.2	8.3	18.0
N-Acetyltyrosine (NAT)	C20254	30	24.3	18.8	29.7
N-Acetyltyrosine (NAT)	C20255	75	54.8	42.6	67.0
N-Acetyltyrosine (NAT)	C20256	150	102.5	86.8	118.2
N-Acetyltyrosine (NAT)	C20257	300	174.9	137.8	212.0
N-Acetyltyrosine (NAT)	C20258	450	238.0	182.6	293.4
Ornithine (Orn)	C20251	0	135.8	105.5	166.1
Ornithine (Orn)	C20252	6.25	121.9	95.0	148.7
Ornithine (Orn)	C20253	12.5	132.1	108.2	156.0
Ornithine (Orn)	C20254	25	144.4	114.6	174.1
Ornithine (Orn)	C20255	62.5	173.1	146.6	199.6
Ornithine (Orn)	C20256	125	231.2	192.0	270.4
Ornithine (Orn)	C20257	250	319.5	262.6	376.4
Ornithine (Orn)	C20258	375	428.5	369.6	487.3
Phenylalanine (Phe)	C20251	0	44.4	44.4	44.4
Phenylalanine (Phe)	C20252	25	86.9	86.9	86.9
Phenylalanine (Phe)	C20253	50	133.1	133.1	133.1
Phenylalanine (Phe)	C20254	100	212.8	212.8	212.8
Phenylalanine (Phe)	C20255	250	388.1	388.1	388.1
Phenylalanine (Phe)	C20256	500	777.9	457.4	1098.3
Phenylalanine (Phe)	C20257	1000	1315.1	850.7	1779.5
Phenylalanine (Phe)	C20258	1500	1732.6	1118.1	2347.1
Succinylacetone (SUAC)	C20251	0	0.3	0.2	0.4
Succinylacetone (SUAC)	C20252	2.5	0.7	0.5	0.9
Succinylacetone (SUAC)	C20253	5	1.2	0.9	1.5
Succinylacetone (SUAC)	C20254	10	2.3	1.9	2.7
Succinylacetone (SUAC)	C20255	25	5.3	4.4	6.2
Succinylacetone (SUAC)	C20256	50	10.5	8.2	12.7
Succinylacetone (SUAC)	C20257	100	19.6	15.0	24.2
Succinylacetone (SUAC)	C20258	150	30.4	23.5	37.4

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Tyrosine (Tyr)	C20251	0	16.7	4.2	29.2
Tyrosine (Tyr)	C20252	18.75	28.3	10.8	45.9
Tyrosine (Tyr)	C20253	37.5	43.3	15.8	70.7
Tyrosine (Tyr)	C20254	75	74.3	39.9	108.6
Tyrosine (Tyr)	C20255	187.5	158.3	97.0	219.7
Tyrosine (Tyr)	C20256	375	305.2	187.1	423.2
Tyrosine (Tyr)	C20257	750	613.3	348.2	878.5
Tyrosine (Tyr)	C20258	1125	882.6	641.9	1123.2
Valine (Val)	C20251	0	42.7	23.7	61.8
Valine (Val)	C20252	12.5	48.1	25.7	70.5
Valine (Val)	C20253	25	56.8	32.2	81.3
Valine (Val)	C20254	50	75.2	43.1	107.2
Valine (Val)	C20255	125	123.2	69.6	176.7
Valine (Val)	C20256	250	214.8	129.6	300.0
Valine (Val)	C20257	500	347.7	180.1	515.3
Valine (Val)	C20258	750	518.0	303.7	732.3
Creatine (CRE)	C20251	0	214.4	175.7	253.1
Creatine (CRE)	C20252	10	206.7	173.5	239.8
Creatine (CRE)	C20253	20	223.0	190.3	255.8
Creatine (CRE)	C20254	40	235.6	199.8	271.4
Creatine (CRE)	C20255	100	277.9	234.2	321.5
Creatine (CRE)	C20256	200	356.4	307.0	405.9
Creatine (CRE)	C20257	400	483.8	411.0	556.6
Creatine (CRE)	C20258	600	643.2	550.6	735.8
Guanidinoacetic Acid (GUAC)	C20251	0	1.3	0.9	1.6
Guanidinoacetic Acid (GUAC)	C20252	0.5	1.8	1.4	2.2
Guanidinoacetic Acid (GUAC)	C20253	1	2.4	2.0	2.8
Guanidinoacetic Acid (GUAC)	C20254	2	3.6	3.0	4.2
Guanidinoacetic Acid (GUAC)	C20255	5	6.9	5.7	8.1
Guanidinoacetic Acid (GUAC)	C20256	10	12.7	10.8	14.6
Guanidinoacetic Acid (GUAC)	C20257	20	22.7	18.8	26.6
Guanidinoacetic Acid (GUAC)	C20258	30	33.8	28.6	38.9

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Creatinine (CRN)	C20251	0	22.8	19.0	26.6
Creatinine (CRN)	C20252	5	25.5	21.9	29.0
Creatinine (CRN)	C20253	10	30.5	26.3	34.7
Creatinine (CRN)	C20254	20	39.2	32.8	45.6
Creatinine (CRN)	C20255	50	63.8	52.9	74.7
Creatinine (CRN)	C20256	100	108.6	92.0	125.3
Creatinine (CRN)	C20257	200	185.6	158.5	212.8
Creatinine (CRN)	C20258	300	272.4	236.1	308.7
Free carnitine (C0)	C20251	0	15.7	13.0	18.4
Free carnitine (C0)	C20252	5	19.2	16.0	22.3
Free carnitine (C0)	C20253	10	24.1	19.9	28.3
Free carnitine (C0)	C20254	20	32.7	26.9	38.5
Free carnitine (C0)	C20255	50	55.9	46.0	65.7
Free carnitine (C0)	C20256	100	95.9	80.7	111.1
Free carnitine (C0)	C20257	200	161.1	124.0	198.1
Free carnitine (C0)	C20258	300	239.1	195.0	283.3
Acetylcarnitine (C2)	C20251	0	6.68	5.48	7.88
Acetylcarnitine (C2)	C20252	3.75	10.11	8.45	11.76
Acetylcarnitine (C2)	C20253	7.5	14.23	11.93	16.52
Acetylcarnitine (C2)	C20254	15	21.11	18.27	23.95
Acetylcarnitine (C2)	C20255	37.5	38.54	31.73	45.34
Acetylcarnitine (C2)	C20256	75	60.95	46.43	75.47
Acetylcarnitine (C2)	C20257	150	93.34	72.27	114.40
Acetylcarnitine (C2)	C20258	225	130.50	104.70	156.30
Propionylcarnitine (C3)	C20251	0	0.95	0.79	1.11
Propionylcarnitine (C3)	C20252	0.5	1.31	1.12	1.50
Propionylcarnitine (C3)	C20253	1	1.80	1.43	2.18
Propionylcarnitine (C3)	C20254	2	2.69	2.29	3.10
Propionylcarnitine (C3)	C20255	5	5.30	4.35	6.24
Propionylcarnitine (C3)	C20256	10	9.74	7.75	11.73
Propionylcarnitine (C3)	C20257	20	16.55	13.82	19.29
Propionylcarnitine (C3)	C20258	30	23.21	19.00	27.41

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Analyte	Lot	Enrichment	Mean Value	95% LL	95% UL
Malonylcarnitine (C3DC)	C20251	0	0.04	0.00	0.07
Malonylcarnitine (C3DC)	C20252	0.125	0.08	0.05	0.11
Malonylcarnitine (C3DC)	C20253	0.25	0.14	0.11	0.18
Malonylcarnitine (C3DC)	C20254	0.5	0.25	0.21	0.29
Malonylcarnitine (C3DC)	C20255	1.25	0.59	0.49	0.70
Malonylcarnitine (C3DC)	C20256	2.5	1.18	0.99	1.37
Malonylcarnitine (C3DC)	C20257	5	2.25	1.84	2.65
Malonylcarnitine (C3DC)	C20258	7.5	3.45	2.92	3.97
Butyrylcarnitine (C4)	C20251	0	0.05	0.04	0.06
Butyrylcarnitine (C4)	C20252	0.125	0.15	0.13	0.17
Butyrylcarnitine (C4)	C20253	0.25	0.27	0.23	0.30
Butyrylcarnitine (C4)	C20254	0.5	0.47	0.39	0.55
Butyrylcarnitine (C4)	C20255	1.25	1.12	0.97	1.27
Butyrylcarnitine (C4)	C20256	2.5	2.13	1.79	2.46
Butyrylcarnitine (C4)	C20257	5	4.29	3.66	4.91
Butyrylcarnitine (C4)	C20258	7.5	6.51	5.71	7.30
Hydroxybutyrylcarnitine (C4OH)	C20251	0	0.09	0.07	0.11
Hydroxybutyrylcarnitine (C4OH)	C20252	0.125	0.24	0.21	0.27
Hydroxybutyrylcarnitine (C4OH)	C20253	0.25	0.40	0.35	0.46
Hydroxybutyrylcarnitine (C4OH)	C20254	0.5	0.70	0.60	0.80
Hydroxybutyrylcarnitine (C4OH)	C20255	1.25	1.48	1.29	1.67
Hydroxybutyrylcarnitine (C4OH)	C20256	2.5	2.77	2.20	3.34
Hydroxybutyrylcarnitine (C4OH)	C20257	5	5.45	4.52	6.38
Hydroxybutyrylcarnitine (C4OH)	C20258	7.5	7.78	6.60	8.95
Isovalerylcarnitine (C5)	C20251	0	0.03	0.02	0.04
Isovalerylcarnitine (C5)	C20252	0.25	0.27	0.20	0.33
Isovalerylcarnitine (C5)	C20253	0.5	0.55	0.42	0.67
Isovalerylcarnitine (C5)	C20254	1	1.10	0.82	1.38
Isovalerylcarnitine (C5)	C20255	2.5	2.75	1.98	3.52
Isovalerylcarnitine (C5)	C20256	5	5.71	4.08	7.34
Isovalerylcarnitine (C5)	C20257	10	10.49	7.32	13.65
Isovalerylcarnitine (C5)	C20258	15	15.25	10.93	19.57

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Tiglyl carnitine (C5:1)	C20251	0	0.01	0.00	0.01
Tiglyl carnitine (C5:1)	C20252	0.125	0.20	0.10	0.30
Tiglyl carnitine (C5:1)	C20253	0.25	0.45	0.20	0.70
Tiglyl carnitine (C5:1)	C20254	0.5	0.92	0.55	1.28
Tiglyl carnitine (C5:1)	C20255	1.25	2.24	1.33	3.15
Tiglyl carnitine (C5:1)	C20256	2.5	4.68	2.50	6.87
Tiglyl carnitine (C5:1)	C20257	5	8.32	3.49	13.15
Tiglyl carnitine (C5:1)	C20258	7.5	14.02	10.59	17.46
Glutaryl carnitine (C5DC)	C20251	0	0.01	0.00	0.01
Glutaryl carnitine (C5DC)	C20252	0.125	0.11	0.09	0.13
Glutaryl carnitine (C5DC)	C20253	0.25	0.22	0.18	0.26
Glutaryl carnitine (C5DC)	C20254	0.5	0.43	0.35	0.52
Glutaryl carnitine (C5DC)	C20255	1.25	1.05	0.92	1.19
Glutaryl carnitine (C5DC)	C20256	2.5	2.12	1.84	2.40
Glutaryl carnitine (C5DC)	C20257	5	4.06	3.50	4.62
Glutaryl carnitine (C5DC)	C20258	7.5	6.06	5.22	6.90
Hydroxyisovalerylcarnitine (C5OH)	C20251	0	0.36	0.28	0.43
Hydroxyisovalerylcarnitine (C5OH)	C20252	0.25	0.60	0.51	0.68
Hydroxyisovalerylcarnitine (C5OH)	C20253	0.5	0.91	0.79	1.02
Hydroxyisovalerylcarnitine (C5OH)	C20254	1	1.46	1.23	1.68
Hydroxyisovalerylcarnitine (C5OH)	C20255	2.5	3.01	2.54	3.48
Hydroxyisovalerylcarnitine (C5OH)	C20256	5	5.66	4.87	6.45
Hydroxyisovalerylcarnitine (C5OH)	C20257	10	10.16	8.83	11.49
Hydroxyisovalerylcarnitine (C5OH)	C20258	15	14.92	13.08	16.76
Hexanoylcarnitine (C6)	C20251	0	0.01	0.00	0.01
Hexanoylcarnitine (C6)	C20252	0.125	0.12	0.10	0.14
Hexanoylcarnitine (C6)	C20253	0.25	0.25	0.21	0.28
Hexanoylcarnitine (C6)	C20254	0.5	0.48	0.42	0.54
Hexanoylcarnitine (C6)	C20255	1.25	1.19	0.98	1.40
Hexanoylcarnitine (C6)	C20256	2.5	2.33	1.95	2.71
Hexanoylcarnitine (C6)	C20257	5	4.46	3.79	5.13
Hexanoylcarnitine (C6)	C20258	7.5	6.67	5.59	7.74

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Octanoylcarnitine (C8)	C20251	0	0.01	0.01	0.02
Octanoylcarnitine (C8)	C20252	0.5	0.44	0.39	0.49
Octanoylcarnitine (C8)	C20253	1	0.89	0.77	1.01
Octanoylcarnitine (C8)	C20254	2	1.76	1.54	1.98
Octanoylcarnitine (C8)	C20255	5	4.05	3.50	4.59
Octanoylcarnitine (C8)	C20256	10	8.38	6.92	9.83
Octanoylcarnitine (C8)	C20257	20	16.83	13.92	19.74
Octanoylcarnitine (C8)	C20258	30	23.79	21.56	26.03
Decanoylcarnitine (C10)	C20251	0	0.01	0.00	0.01
Decanoylcarnitine (C10)	C20252	0.25	0.24	0.20	0.28
Decanoylcarnitine (C10)	C20253	0.5	0.48	0.41	0.55
Decanoylcarnitine (C10)	C20254	1	0.98	0.82	1.13
Decanoylcarnitine (C10)	C20255	2.5	2.32	1.94	2.70
Decanoylcarnitine (C10)	C20256	5	4.48	3.64	5.32
Decanoylcarnitine (C10)	C20257	10	7.85	6.25	9.44
Decanoylcarnitine (C10)	C20258	15	11.29	9.15	13.43
Decenoyl-L-carnitine (C10:1)	C20251	0	0.00	0.00	0.01
Decenoyl-L-carnitine (C10:1)	C20252	0.25	0.16	0.07	0.26
Decenoyl-L-carnitine (C10:1)	C20253	0.5	0.35	0.20	0.51
Decenoyl-L-carnitine (C10:1)	C20254	1	0.70	0.41	0.99
Decenoyl-L-carnitine (C10:1)	C20255	2.5	1.75	1.07	2.42
Decenoyl-L-carnitine (C10:1)	C20256	5	3.30	2.02	4.58
Decenoyl-L-carnitine (C10:1)	C20257	10	5.69	2.45	8.94
Decenoyl-L-carnitine (C10:1)	C20258	15	8.46	4.32	12.59
Decadienoyl-L-carnitine (C10:2)	C20251	0	0.02	0.00	0.06
Decadienoyl-L-carnitine (C10:2)	C20252	0.25	0.24	0.13	0.34
Decadienoyl-L-carnitine (C10:2)	C20253	0.5	0.46	0.33	0.59
Decadienoyl-L-carnitine (C10:2)	C20254	1	0.90	0.64	1.16
Decadienoyl-L-carnitine (C10:2)	C20255	2.5	2.21	1.66	2.76
Decadienoyl-L-carnitine (C10:2)	C20256	5	4.21	3.23	5.20
Decadienoyl-L-carnitine (C10:2)	C20257	10	7.49	4.76	10.23
Decadienoyl-L-carnitine (C10:2)	C20258	15	10.98	7.58	14.38

**Reference Material:** MSMS1 Linearity

**Expiration Date:** September 2027

**Analysis Method:** LC-MS/MS non-kit

**Material Storage:** -20°C ± 10°C

**Units:** µmol/L blood

Analyte	Lot	Enrichment	Mean Value	95% LL	95% UL
Dodecanoylcarnitine (C12)	C20251	0	0.01	0.00	0.02
Dodecanoylcarnitine (C12)	C20252	0.25	0.29	0.23	0.36
Dodecanoylcarnitine (C12)	C20253	0.5	0.59	0.45	0.73
Dodecanoylcarnitine (C12)	C20254	1	1.16	0.86	1.47
Dodecanoylcarnitine (C12)	C20255	2.5	2.55	2.00	3.10
Dodecanoylcarnitine (C12)	C20256	5	5.19	3.66	6.72
Dodecanoylcarnitine (C12)	C20257	10	10.06	7.92	12.20
Dodecanoylcarnitine (C12)	C20258	15	14.13	11.06	17.19
Myristoylcarnitine (C14)	C20251	0	0.04	0.03	0.06
Myristoylcarnitine (C14)	C20252	0.25	0.27	0.19	0.36
Myristoylcarnitine (C14)	C20253	0.5	0.52	0.36	0.68
Myristoylcarnitine (C14)	C20254	1	1.00	0.77	1.24
Myristoylcarnitine (C14)	C20255	2.5	2.25	1.64	2.86
Myristoylcarnitine (C14)	C20256	5	4.92	3.96	5.89
Myristoylcarnitine (C14)	C20257	10	9.79	7.56	12.02
Myristoylcarnitine (C14)	C20258	15	13.95	11.51	16.38
Tetradecenoyl carnitine (C14:1)	C20251	0	0.03	0.02	0.05
Tetradecenoyl carnitine (C14:1)	C20252	0.25	0.25	0.16	0.33
Tetradecenoyl carnitine (C14:1)	C20253	0.5	0.47	0.31	0.64
Tetradecenoyl carnitine (C14:1)	C20254	1	0.91	0.67	1.15
Tetradecenoyl carnitine (C14:1)	C20255	2.5	2.17	1.59	2.74
Tetradecenoyl carnitine (C14:1)	C20256	5	4.10	3.35	4.84
Tetradecenoyl carnitine (C14:1)	C20257	10	8.28	6.71	9.85
Tetradecenoyl carnitine (C14:1)	C20258	15	11.75	9.96	13.54
Palmitoylcarnitine (C16)	C20251	0	1.11	0.52	1.69
Palmitoylcarnitine (C16)	C20252	0.5	1.66	0.76	2.56
Palmitoylcarnitine (C16)	C20253	1	2.33	0.99	3.67
Palmitoylcarnitine (C16)	C20254	2	3.64	1.86	5.42
Palmitoylcarnitine (C16)	C20255	5	7.23	3.70	10.76
Palmitoylcarnitine (C16)	C20256	10	13.46	7.62	19.30
Palmitoylcarnitine (C16)	C20257	20	23.33	14.58	32.07
Palmitoylcarnitine (C16)	C20258	30	33.52	21.52	45.53

**Reference Material:** MSMS1 Linearity

**Expiration Date:** September 2027

**Analysis Method:** LC-MS/MS non-kit

**Material Storage:** -20°C ± 10°C

**Units:** µmol/L blood

Analyte	Lot	Enrichment	Mean Value	95% LL	95% UL
Hydroxypalmitoylcarnitine (C16OH)	C20251	0	0.00	0.00	0.01
Hydroxypalmitoylcarnitine (C16OH)	C20252	0.125	0.18	0.15	0.21
Hydroxypalmitoylcarnitine (C16OH)	C20253	0.25	0.36	0.31	0.41
Hydroxypalmitoylcarnitine (C16OH)	C20254	0.5	0.71	0.58	0.84
Hydroxypalmitoylcarnitine (C16OH)	C20255	1.25	1.53	1.32	1.75
Hydroxypalmitoylcarnitine (C16OH)	C20256	2.5	2.84	2.30	3.38
Hydroxypalmitoylcarnitine (C16OH)	C20257	5	5.54	4.75	6.34
Hydroxypalmitoylcarnitine (C16OH)	C20258	7.5	7.84	6.63	9.05
Stearoylcarnitine (C18)	C20251	0	0.67	0.50	0.84
Stearoylcarnitine (C18)	C20252	0.25	0.86	0.69	1.03
Stearoylcarnitine (C18)	C20253	0.5	1.14	0.92	1.36
Stearoylcarnitine (C18)	C20254	1	1.66	1.26	2.05
Stearoylcarnitine (C18)	C20255	2.5	2.98	2.40	3.57
Stearoylcarnitine (C18)	C20256	5	5.39	4.58	6.19
Stearoylcarnitine (C18)	C20257	10	9.01	7.55	10.46
Stearoylcarnitine (C18)	C20258	15	13.02	10.90	15.15
Oleoyl-L-carnitine (C18:1)	C20251	0	1.23	0.82	1.63
Oleoyl-L-carnitine (C18:1)	C20252	0.25	1.35	0.96	1.74
Oleoyl-L-carnitine (C18:1)	C20253	0.5	1.62	1.15	2.10
Oleoyl-L-carnitine (C18:1)	C20254	1	2.14	1.46	2.81
Oleoyl-L-carnitine (C18:1)	C20255	2.5	3.37	2.46	4.27
Oleoyl-L-carnitine (C18:1)	C20256	5	5.73	4.65	6.80
Oleoyl-L-carnitine (C18:1)	C20257	10	9.00	7.43	10.57
Oleoyl-L-carnitine (C18:1)	C20258	15	12.71	10.92	14.50
Hydroxystearoylcarnitine (C18OH)	C20251	0	0.01	0.00	0.01
Hydroxystearoylcarnitine (C18OH)	C20252	0.125	0.14	0.11	0.16
Hydroxystearoylcarnitine (C18OH)	C20253	0.25	0.27	0.23	0.32
Hydroxystearoylcarnitine (C18OH)	C20254	0.5	0.53	0.43	0.63
Hydroxystearoylcarnitine (C18OH)	C20255	1.25	1.15	0.98	1.31
Hydroxystearoylcarnitine (C18OH)	C20256	2.5	1.95	1.62	2.28
Hydroxystearoylcarnitine (C18OH)	C20257	5	3.79	3.14	4.43
Hydroxystearoylcarnitine (C18OH)	C20258	7.5	5.40	4.58	6.22

**Reference Material:** MSMS1 Linearity

**Expiration Date:** September 2027

**Analysis Method:** LC-MS/MS non-kit

**Material Storage:** -20°C ± 10°C

**Units:** µmol/L blood

Analyte	Lot	Enrichment	Mean Value	95% LL	95% UL
Adenosine (Ado)	C20251	0	0.25	0.20	0.30
Adenosine (Ado)	C20252	0.1	0.28	0.23	0.32
Adenosine (Ado)	C20253	0.2	0.37	0.31	0.43
Adenosine (Ado)	C20254	0.4	0.61	0.53	0.69
Adenosine (Ado)	C20255	1	1.16	1.05	1.27
Adenosine (Ado)	C20256	2	2.17	1.87	2.47
Adenosine (Ado)	C20257	4	3.99	3.43	4.56
Adenosine (Ado)	C20258	6	5.64	5.14	6.14
Deoxyadenosine (dAdo)	C20251	0	0.01	0.00	0.02
Deoxyadenosine (dAdo)	C20252	0.1	0.09	0.08	0.11
Deoxyadenosine (dAdo)	C20253	0.2	0.18	0.15	0.20
Deoxyadenosine (dAdo)	C20254	0.4	0.35	0.31	0.39
Deoxyadenosine (dAdo)	C20255	1	0.84	0.72	0.96
Deoxyadenosine (dAdo)	C20256	2	1.64	1.43	1.84
Deoxyadenosine (dAdo)	C20257	4	2.93	2.27	3.59
Deoxyadenosine (dAdo)	C20258	6	4.40	2.82	5.98
C20:0-lysophosphatidylcholine (C20-LPC)	C20251	0	0.06	0.02	0.11
C20:0-lysophosphatidylcholine (C20-LPC)	C20252	0.1	0.12	0.05	0.19
C20:0-lysophosphatidylcholine (C20-LPC)	C20253	0.2	0.20	0.10	0.29
C20:0-lysophosphatidylcholine (C20-LPC)	C20254	0.4	0.35	0.20	0.50
C20:0-lysophosphatidylcholine (C20-LPC)	C20255	1	0.82	0.48	1.15
C20:0-lysophosphatidylcholine (C20-LPC)	C20256	2	1.74	0.96	2.51
C20:0-lysophosphatidylcholine (C20-LPC)	C20257	4	3.36	1.96	4.77
C20:0-lysophosphatidylcholine (C20-LPC)	C20258	6	5.63	2.82	8.43
C22:0-lysophosphatidylcholine (C22-LPC)	C20251	0	0.02	0.01	0.03
C22:0-lysophosphatidylcholine (C22-LPC)	C20252	0.1	0.09	0.06	0.12
C22:0-lysophosphatidylcholine (C22-LPC)	C20253	0.2	0.16	0.11	0.22
C22:0-lysophosphatidylcholine (C22-LPC)	C20254	0.4	0.32	0.22	0.43
C22:0-lysophosphatidylcholine (C22-LPC)	C20255	1	0.75	0.51	0.99
C22:0-lysophosphatidylcholine (C22-LPC)	C20256	2	1.66	1.29	2.03
C22:0-lysophosphatidylcholine (C22-LPC)	C20257	4	3.07	2.39	3.75
C22:0-lysophosphatidylcholine (C22-LPC)	C20258	6	4.81	3.52	6.11

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**Expiration Date:** September 2027

**Analysis Method:** LC-MS/MS non-kit

**Material Storage:** -20°C ± 10°C

**Units:** µmol/L blood

Analyte	Lot	Enrichment	Mean Value	95% LL	95% UL
C24:0-lysophosphatidylcholine (C24-LPC)	C20251	0	0.05	0.03	0.07
C24:0-lysophosphatidylcholine (C24-LPC)	C20252	0.1	0.13	0.10	0.16
C24:0-lysophosphatidylcholine (C24-LPC)	C20253	0.2	0.24	0.19	0.29
C24:0-lysophosphatidylcholine (C24-LPC)	C20254	0.4	0.45	0.35	0.55
C24:0-lysophosphatidylcholine (C24-LPC)	C20255	1	0.97	0.71	1.23
C24:0-lysophosphatidylcholine (C24-LPC)	C20256	2	2.07	1.66	2.47
C24:0-lysophosphatidylcholine (C24-LPC)	C20257	4	3.81	3.05	4.58
C24:0-lysophosphatidylcholine (C24-LPC)	C20258	6	5.85	4.58	7.13
C26:0-lysophosphatidylcholine (C26-LPC)	C20251	0	0.02	0.01	0.03
C26:0-lysophosphatidylcholine (C26-LPC)	C20252	0.1	0.11	0.08	0.13
C26:0-lysophosphatidylcholine (C26-LPC)	C20253	0.2	0.20	0.15	0.24
C26:0-lysophosphatidylcholine (C26-LPC)	C20254	0.4	0.39	0.33	0.46
C26:0-lysophosphatidylcholine (C26-LPC)	C20255	1	0.93	0.77	1.09
C26:0-lysophosphatidylcholine (C26-LPC)	C20256	2	1.95	1.65	2.24
C26:0-lysophosphatidylcholine (C26-LPC)	C20257	4	3.68	2.98	4.37
C26:0-lysophosphatidylcholine (C26-LPC)	C20258	6	5.56	4.57	6.55

*\*Note: Levels 6-8 were analyzed using 10x diluted DBS extracts for the following analytes: Phe, Ado, C4OH, C8, C12, C14, C14:1, C16OH, C18OH*