Alpha Tides

CERTIFICATE OF ANALYSIS · LOT RELEASE

alphatides.net

CERTIFICATE NO.
PL-26-00060

VERIFICATION KEY
3WLU82N9

Scan or enter both at prymalab.net/testing/verify

CERTIFICATE OF ANALYSIS · LOT RELEASE · ISSUED FOR ALPHA TIDES

L-Carnitine 500 mg

Lot **PL-2609-060** · Lyophilized powder · Label claim **500 mg/vial**

TESTED IN-HOUSE BY PRYMALAB

In-house analytical result, not an independent third-party test

LOT / BATCH NUMBER	DATE MADE	DATE OF ANALYSIS	DATE ISSUED
PL-2609-060	2026-09-18	2026-09-19	2026-10-03

RETEST / EXPIRY	UNITS IN LOT / SAMPLED	STORAGE	CERTIFICATE TYPE
2028-09-18	250 / 2	15–25 °C, tightly closed, dry	Lot COA, 2 pages

COMPOUND	CAS NUMBER	MOLECULAR FORMULA	THEORETICAL MASS (AVG.)
L-Carnitine Levocarnitine (inner salt); small molecule, not a peptide	541-15-1	$C_7H_{15}NO_3$	161.2 Da

STRUCTURE

(R)-3-Hydroxy-4-(trimethylammonio)butanoate; zwitterionic quaternary ammonium compound; strongly hygroscopic.

PURITY · RP-HPLC, AREA %
99.82%
Specification 99.0% • main peak at 2.18 min

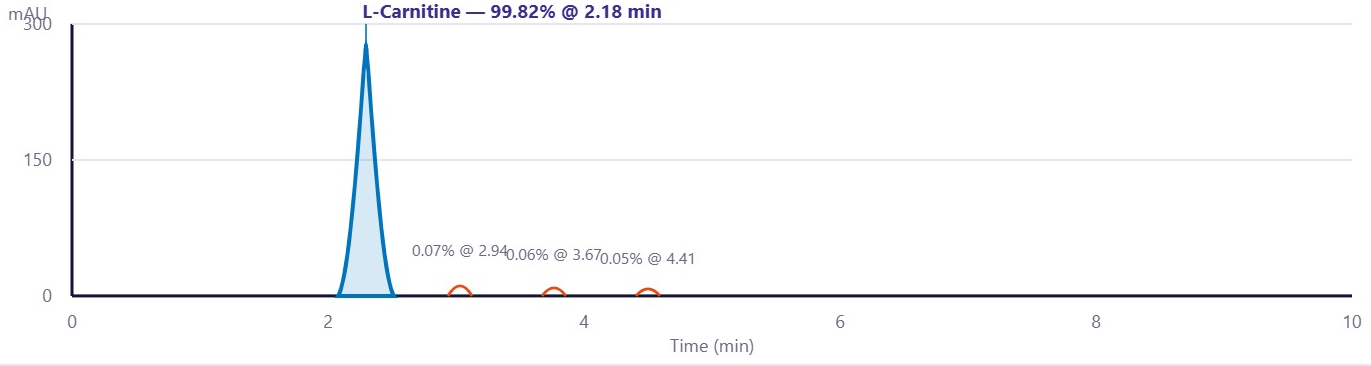
IDENTITY · OBSERVED MASS
161.4 Da
Theoretical 161.2 Da • +0.2 Da (1241 ppm)

OVERALL CONCLUSION
PASS
Meets every specification for the tests performed

TEST	METHOD	SPECIFICATION	RESULT	CONCLUSION
Appearance	Visual inspection	White crystalline powder (hygroscopic)	White crystalline powder	**PASS**
Identity (mass)	LC-MS, ESI positive	Theoretical ± 1.0 Da	161.4 Da	**PASS**
Purity	RP-HPLC, UV 214 nm, area%	99.0%	99.82%	**PASS**
Largest impurity	RP-HPLC, area%	1.0%	0.07% at 2.94 min	**PASS**
Water content	Karl Fischer	5.0%	1.6%	**PASS**
Bacterial endotoxin	LAL, kinetic	≤ 5.0 EU/mg	0.04 EU/mg	**PASS**
Sterility / bioburden	USP <71>, membrane filtration	No growth after 14 days	No growth; conforms	**PASS**

1 HPLC CHROMATOGRAM

Data file: LCN_PL-2609-060_20260919_01 · Column C18, 150 × 4.6 mm · UV 214 nm



Baseline uncropped; main peak and impurities labeled with retention times. Peak table on page 2.

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For laboratory research use only. Not for human or veterinary use.

2 HPLC METHOD · LCN_PL-2609-060_20260919_01

INSTRUMENT
Waters Alliance e2695, SN E2695B742

DATA SYSTEM
Empower 3, Build 3471

DETECTOR
Waters 2998 PDA

DETECTION WAVELENGTH
214 nm

COLUMN
C18, 150 × 4.6 mm, 3.5 µm

COLUMN PART / SERIAL
186003326 / USHX18211

MOBILE PHASE A
0.1% TFA in water

MOBILE PHASE B
0.1% TFA in MeCN

FLOW RATE
1.0 mL/min

COLUMN TEMPERATURE
30 °C

INJECTION VOLUME
20 µL

RUN TIME
10 min

SAMPLE DILUENT
Water, 0.1% TFA

SAMPLE CONCENTRATION
0.5 mg/mL

BLANK INJECTED
Yes

REFERENCE STANDARD
In-house L-carnitine reference, lot PL-RS-LCN-01, RT 2.16 min

3 GRADIENT PROGRAM

TIME (MIN)	% A	% B
0.0	95	5
3.0	95	5
7.0	55	45
8.0	20	80
9.0	20	80
10.0	95	5

4 PEAK TABLE

PEAK	RT (MIN)	AREA	AREA %
1	**2.18**	**4,292,260**	**99.82**
2	2.94	3,010	0.07
3	3.67	2,580	0.06
4	4.41	2,150	0.05
Total		4,300,000	100.00

Threshold 0.05% area · Blank subtracted: Y · Purity = main peak area ÷ total integrated area × 100, to two decimals; main peak shaded.

5 IDENTITY BY MASS SPECTROMETRY

INSTRUMENT
Waters Acquity SQD

IONIZATION / MODE
ESI, positive

OBSERVED M/Z (CHARGE)
162.1 (1+ [M+H]) · 184.1 (1+ [M+Na])

DECONVOLUTED MASS
161.4 Da

THEORETICAL MASS
161.2 Da (Levocarnitine inner salt)

DIFFERENCE
+0.2 Da (1241 ppm)

DATA FILE
LCN_PL-2609-060_MS_20260919_01

ACCEPTANCE
Within ± 1.0 Da

6 ADDITIONAL TESTS

TEST	PERFORMED BY	DATE	REPORT / FILE
Water content	PrymaLab	2026-09-20	RPT-KF-PL-2609-060
Endotoxin	PrymaLab	2026-09-21	RPT-ET-PL-2609-060
Sterility	PrymaLab	2026-10-02	RPT-ST-PL-2609-060

A test with no row here was not performed on this lot. Outside-laboratory reports, when used, are attached and named below.

7 REVIEW AND APPROVAL

D. Reynolds
Analyst · performed the testing
Date: 2026-09-19

S. Calloway
Reviewer · checked against raw data
Date: 2026-10-02

M. Phelps
Lab Director · approved for release
Date: 2026-10-03

Raw data retained at: Empower 3 (Build 3471), project PL-2609, archive PL-ARC-2026; 7 years. Outside laboratory reports attached: None

This certificate applies only to the lot named above and describes the units sampled from it; it is not a guarantee for any other lot. Results were obtained by PrymaLab LLC's own laboratory (PrymaLab Analytical) and are not an independent third-party test unless an outside report is attached. This copy is issued for Alpha Tides, a distributor of the lot; the brand shown does not change the laboratory, the method or the results. Reference values (CAS, formula, theoretical mass, sequence) are literature values for the named compound. Authenticity: scan the QR code or enter certificate number PL-26-00060 and key 3WLU82N9 at prymalab.net/testing/verify; any copy that does not match the record shown there is not a PrymaLab certificate. PrymaLab LLC products are supplied for laboratory research use only and not for human or veterinary use.