

Title: **Acetyl L-Carnitine 500 mg, 100 Capsules**

Allergy Research Group® / NutriCology®

Document No.: 70660CA

Revision: 007

Certificate of Analysis

Part Number	70660		
Lot Number	00412		
Product Count & Form	100 Vegetarian Capsules		
Packaging, Closure	225 cc bottle, desiccant, rayon/cotton		
Storage Condition	Room Temperature		
Shelf Life	24 months	Expiration Date	03/22
Label Number, Size	70660L, D		
Retain Sample	2 bottles per label (4 bottles total)		

ANALYSIS

Physical

Attribute	Method / SOP	Specification	Test Result
Product Color & Size	QC011	White, Size "00"	Complies
Product Weight	QC012	Meet USP <2091> 720 – 900 mg	Passes, 810 mg
Disintegration Time	QC018	Meet USP <2040>	Passes, 18:40 mins.

Strength / Purity per Capsule

Active Ingredient	Label Claim	Specification	Test Result
Acetyl-L-Carnitine (as Hydrochloride)	500 mg	100 - 150% of LC by HPLC	660.1 mg

Other Ingredients: Hydroxypropyl methylcellulose, microcrystalline cellulose, silicon dioxide, L-leucine

*Production and Process Control

Identification \ Chemical \ Heavy Metals


Attribute	Method / SOP	Specification	Test Result
Identity	Bulk Certificate of Analysis Review	Approved	Approved
Identity	Near Infrared Spectroscopy	Matches Reference	Complies
Arsenic (inorganic)	ICP-MS per USP <2232>	≤ 15 mcg/day Ψ	0.072 ppm
Cadmium	ICP-MS per USP <2232>	≤ 5 mcg/day Ψ	0.023 ppm
Mercury (total)	ICP-MS per USP <2232>	≤ 15 mcg/day Ψ	BQL*
Lead	ICP-MS per USP <2232>	≤ 10 mcg/day Ψ	0.0108 ppm

* BQL - Below Quantitative Level

Microbiology

Attribute	Method / SOP	Specification	Test Result
Total Aerobic Count	USP/ AOAC/ FDA BAM	≤ 1 x 10 ³ CFU/g	≤ 1 x 10 ³ CFU/g*
Total Yeast & Mold	USP/ AOAC/ FDA BAM	≤ 1 x 10 ² CFU/g	≤ 1 x 10 ² CFU/g*
Coliform	USP/ AOAC/ FDA BAM	≤ 1 x 10 ² CFU/g	≤ 1 x 10 ² CFU/g*
Escherichia coli	USP/ AOAC/ FDA BAM	None Detected	None Detected*
Staphylococcus aureus	USP/ AOAC/ FDA BAM	None Detected	None Detected*
Salmonella	USP/ AOAC/ FDA BAM	None Detected	None Detected*

*Production and Process Control

Approval: 	Casey Van Wagoner 2020.12.14 12:51:26 -07'00'	Date: 14DEC2020
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If you liked our service, please tell a friend. If you didn't, please tell us!

Test Certificate

Description: Acetyl-L-Carnitine
Sample ID: 40660/ 00412
Lot No:
Location:
Received: 3/25/2020
Completed: 3/31/2020

Client: Allergy Research Group
2300 N Loop Rd.
Alameda, CA 94502

Lab No: 191970-01

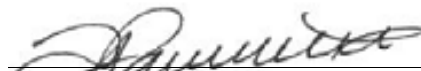
Analysis	Result	Per Unit	Specifications	Method
Total Aerobic Microbial Count	<10	CFU/g	<= 10,000 CFU/g	USP <2021>
Coliform	<10	CFU/g	<= 1,000 CFU/g	AOAC 991.14
E.Coli	Absent	per 10 grams	Absent	USP <2022>
Staphylococcus aureus	Absent	per 10 grams	Absent	USP <2022>
Salmonella	Absent	per 10 grams	Absent	USP <2022>
Total Yeast & Mold	<10	CFU/g	<= 1,000 CFU/g	USP <2021>
Yeast *	<10	CFU/g	<= 1,000 CFU/g	
Mold *	<10	CFU/g	<= 1,000 CFU/g	

* For informational purposes only.

THESE RESULTS APPLY ONLY TO THE SAMPLE SUBMITTED AND NOT TO THE PRODUCT FROM WHICH IT WAS TAKEN. THESE RESULTS ARE PROVIDED ONLY FOR THE BENEFIT OF CLIENT, WITHOUT REPRESENTATION OR WARRANTY OF ANY KIND, EXCEPT FOR THE EXPRESS LIMITED WARRANTY PROVIDED SOLELY TO CLIENT IN ADVANCED LABORATORIES' TERMS OF SERVICE.

THIS CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL FROM ADVANCED LABORATORIES.

Results Approved By:


Alisa Farnsworth-Quality Technician

Dated:

3/31/2020

Printed: 3/31/2020 8:54:52 PM



If you liked our service, please tell a friend. If you didn't, please tell us!

Test Certificate

Description: Acetyl-L-Carnitine

Sample ID: 40660/ 00412

Lot No:

Location:

Received: 3/25/2020

Completed: 4/1/2020

Client: Allergy Research Group

2300 N Loop Rd.

Alameda, CA 94502

Lab No: 191973-01

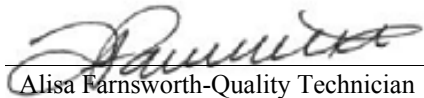
Analysis	Result	Per Unit	Specifications	Method
† Acetyl L-Carnitine	660.1	mg/cap	>= 500 mg/cap	HPLC
Mercury	< 0.001	mcg/g	<= 0.5 mcg/g	ICP-MS USP <730>
Lead	0.108	mcg/g	<= 0.5 mcg/g	ICP-MS USP <730>
Arsenic	0.072	mcg/g	<= 0.5 mcg/g	ICP-MS USP <730>
Cadmium	0.023	mcg/g	<= 0.5 mcg/g	ICP-MS USP <730>

Acetyl L-Carnitine HCl analysis performed using HPLC by method adapted from Park KM, Lee MK, Park YH, Woo JS, Kim CK "HPLC of acetyl-L-carnitine in human plasma by derivatization with p-bromophenacyl bromide" as published in Journal Of Liquid Chromatography & Related Technologies 24 (4): 555-563 2001; utilizing sample derivatized with p-bromophenacyl bromide in the presence of 18-crown-6 followed by separation on a Waters Extera C18 column (150x3.5mm), 40°C, with 20mM Potassium phosphate, pH3.0/Acetonitrile (95:5) 1.5ml/min, detection by scanning photo diode array (200-400nm) with signal extraction at 260 nm.

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Results Approved By:



Alisa Farnsworth-Quality Technician

Dated:

4/1/2020

Tests marked with † were done at Atlas Bioscience Labs, LLC, a joint venture with Advanced Laboratories. - 1775 S. Pantano Rd - Ste #110, Tucson, AZ 85710

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