

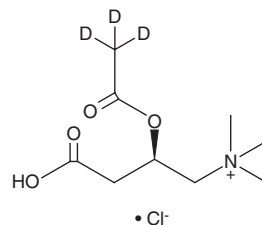
# PRODUCT INFORMATION



## Acetyl-L-carnitine-d<sub>3</sub> (chloride)

Item No. 26564

<b>CAS Registry No.:</b>	362049-62-5
<b>Formal Name:</b>	2R-(acetyl-d <sub>3</sub> -oxy)-3-carboxy-N,N,N-trimethyl-1-propanaminium, monochloride
<b>Synonyms:</b>	ALCAR-d <sub>3</sub> , C2:0 Carnitine-d <sub>3</sub> , CAR 2:0-d <sub>3</sub> , L-Carnitine acetyl ester-d <sub>3</sub> , L-Acetylcarnitine-d <sub>3</sub>
<b>MF:</b>	C <sub>9</sub> H <sub>15</sub> D <sub>3</sub> NO <sub>4</sub> • Cl
<b>FW:</b>	242.7
<b>Chemical Purity:</b>	≥95% (Acetyl-L-Carnitine)
<b>Deuterium Incorporation:</b>	≥99% deuterated forms (d <sub>1</sub> -d <sub>3</sub> ); ≤1% d <sub>0</sub>
<b>Supplied as:</b>	A solid
<b>Storage:</b>	-20°C
<b>Stability:</b>	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Acetyl-L-carnitine-d<sub>3</sub> (chloride) is intended for use as an internal standard for the quantification of acetyl-L-carnitine (chloride) (Item No. 16948) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Acetyl-L-carnitine-d<sub>3</sub> is supplied as a solid. A stock solution may be made by dissolving the acetyl-L-carnitine-d<sub>3</sub> in the solvent of choice, which should be purged with an inert gas. Acetyl-L-carnitine-d<sub>3</sub> is slightly soluble in methanol.

### Description

Acetyl-L-carnitine is an acetylated form of the essential mitochondrial metabolite L-carnitine (Item No. 21489) that is catabolized by plasma esterases into carnitine.<sup>1-3</sup> Acetyl-L-carnitine facilitates the uptake of acetyl-CoA into mitochondria during fatty acid oxidation, enhances acetylcholine production, and stimulates protein and membrane phospholipid synthesis. *In vivo*, acetyl-L-carnitine (100 mg/kg) increases mGlu2/3 receptor protein levels and mechanical pain thresholds in a mouse model of chronic inflammatory pain induced by complete Freund's adjuvant.<sup>4</sup>

### References

1. Vaz, F.M. and Wanders, R.J.A. Carnitine biosynthesis in mammals. *Biochem. J.* **361**(Pt 3), 417-429 (2002).
2. Fu, L., Huang, M., and Chen, S. Primary carnitine deficiency and cardiomyopathy. *Korean. Circ. J.* **43**(12), 785-792 (2013).
3. Stieger, B., O'Neill, B., and Krähenbühl, S. Characterization of L-carnitine transport by rat kidney brush-border-membrane vesicles. *Biochem. J.* **309**(Pt 2), 643-647 (1995).
4. Notartomaso, S., Mascio, G., Bernabucci, M., *et al.* Analgesia induced by the epigenetic drug, L-acetylcarnitine, outlasts the end of treatment in mouse models of chronic inflammatory and neuropathic pain. *Mol. Pain* **13**, (2017).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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