

# PRODUCT INFORMATION



## Palmitoyl-DL-carnitine (chloride)

Item No. 11095

CAS Registry No.: 6865-14-1

Formal Name: 3-carboxy-N,N,N-trimethyl-2-[(1-oxohexadecyl)oxy]-1-propanaminium, monochloride

Synonyms: C16:0 Carnitine, CAR 16:0, DL-Carnitine hexadecanoyl ester, DL-Carnitine palmitoyl ester, Hexadecanoyl-DL-carnitine, DL-Hexadecanoylcarnitine, NSC 628323, DL-Palmitoylcarnitine

MF:  $C_{23}H_{46}NO_4 \cdot Cl$

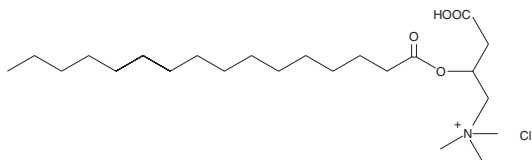
FW: 436.1

Purity:  $\geq 95\%$

Supplied as: A crystalline solid

Storage:  $-20^{\circ}C$

Stability:  $\geq 4$  years



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

### Laboratory Procedures

Palmitoyl-DL-carnitine (chloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the palmitoyl-DL-carnitine (chloride) in the solvent of choice, which should be purged with an inert gas. Palmitoyl-DL-carnitine (chloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of palmitoyl-DL-carnitine (chloride) in ethanol and DMF is approximately 20 mg/ml and approximately 14 mg/ml in DMSO.

### Description

Palmitoyl-DL-carnitine is a long-chain acylcarnitine with both intracellular and extracellular roles. Within the cell, palmitoylcarnitine is transported into mitochondria to deliver palmitate for fatty acid oxidation and energy production.<sup>1</sup> Exogenously added Palmitoyl-DL-carnitine alters calcium mobilization in many cell types.<sup>2-4</sup> It also affects endothelial and epithelial tight junctions, reducing resistance and increasing permeability while decreasing cell viability.<sup>5,6</sup>

### References

1. Bezaire, V., Bruce, C.R., Heigenhauser, G.J.F., *et al.* Identification of fatty acid translocase on human skeletal muscle mitochondrial membranes: Essential role in fatty acid oxidation. *Am. J. Physiol. Endocrinol. Metab.* **290(3)**, E509-E515 (2006).
2. El-Hayek, R., Valdivia, C., Valdivia, H.H., *et al.* Activation of the  $Ca^{2+}$  release channel of skeletal muscle sarcoplasmic reticulum by palmitoyl carnitine. *Biophys. J.* **65(2)**, 779-789 (1993).
3. Stapleton, S.R., Currie, K.P.M., Scott, R.H., *et al.* Palmitoyl-DL-carnitine has calcium-dependent effects on cultured neurones from rat dorsal root ganglia. *Br. J. Pharmacol.* **107(4)**, 1192-1197 (1992).
4. Muraki, K. and Imaizumi, Y. A novel action of palmitoyl-L-carnitine in human vascular endothelial cells. *J. Pharmacol. Sci.* **92(3)**, 252-258 (2003).
5. Duizer, E., van der Wulp, C., Versantvoort, C.H.M., *et al.* Absorption enhancement, structural changes in tight junctions and cytotoxicity caused by palmitoyl carnitine in Caco-2 and IEC-18 cells. *J. Pharmacol. Exp. Ther.* **287(1)**, 395-402 (1998).
6. Ma, L., Kuang, K., Smith, R.W., *et al.* Modulation of tight junction properties relevant to fluid transport across rabbit corneal endothelium. *Exp. Eye Res.* **84(4)**, 790-798 (2007).

#### 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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