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**Product Data Sheet**

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Product Name: Levocarnitine propionate hydrochloride (L-Propionylcarnitine chloride)  
Cat. No.: GC30373

**Chemical Properties**

Cas. No. 119793-66-7

SMILES CCC(O[C@H](CC(O)=O)C[N+](C)(C)C)=O.[Cl-]

Formula  $C_{10}H_{20}ClNO_4$  M.Wt 253.72

Solubility DMSO : 150 mg/mL (591.20 mM); Water : 60 mg/mL (236.48 mM) Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure

**Protocol****Cell experiment [1]:**

Cell lines Human umbilical vein endothelial cells (HUVEC)

Preparation Method Confluent HUVEC were treated with Levocarnitine propionate hydrochloride at a 1mM concentration.

Reaction Conditions 1mM; 4-72h

**Caution: Product has not been fully validated for medical applications. For research use only.**

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Applications	Levocarnitine propionate hydrochloride reduced the production of reactive oxygen species (ROS), increased proliferation and iNOS expression and downregulated Nox4, Nox2, and ICAM-1.
<b>Animal experiment [1]:</b>	
Animal models	New Zealand rabbits
Preparation Method	Unilateral hind limb ischemia was performed by left femoral artery excision in New Zealand rabbits. After 3 days, Levocarnitine propionate hydrochloride was injected in 1mL saline (10mg/rabbit) into 3 points of the quadriceps muscle.
Dosage form	10mg; intramuscular injection; once injection
Applications	Levocarnitine propionate hydrochloride increased the rate of revascularization and the hind limb vascular area.

### References:

[1]Stasi M A, Scioli M G, Arcuri G, et al. Propionyl-L-carnitine improves postischemic blood flow recovery and arteriogenetic revascularization and reduces endothelial NADPH-oxidase 4-mediated superoxide production. *Arterioscler Thromb Vasc Biol.* 2010 Mar;30(3):426-35.

### Background

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Levocarnitine propionate hydrochloride (L-Propionylcarnitine chloride) is a naturally occurring carnitine derivative formed by carnitine acetyltransferase during  $\beta$ -oxidation of uneven chain fatty acids, which has therapeutic potential for the treatment of various cardiovascular disorders, kidney function deterioration, intermittent claudication, and other diseases<sup>[1][2]</sup>.

In vitro, Levocarnitine propionate hydrochloride (1mM) incubation on human umbilical vein endothelial cells (HUVECs) for 4-72h reduced the production of reactive oxygen species (ROS) and Increased proliferation and iNOS expression<sup>[3]</sup>. Levocarnitine propionate hydrochloride ( $10^{-6}$ ,  $10^{-7}$  and  $10^{-8}$ M) treatment on isolated rabbit heart 30min before ischemia reduced mitochondrial dysfunction induced by ischemia, preventing mitochondrial calcium overload, and depletion of ATP tissue stores<sup>[4]</sup>.

In vivo, Levocarnitine propionate hydrochloride (10mg/rabbit) intramuscularly injected into rabbit model of hind limb ischemia increased the rate of revascularization and the hind limb vascular area<sup>[3]</sup>.

### References:

[1] Tama B, Fabara S P, Zarrate D, Sohail A A. Effectiveness of Propionyl-L-Carnitine Supplementation on Exercise Performance in Intermittent Claudication: A Systematic Review. *Cureus*. 2021 Aug 31;13(8):e17592.

[2] Pace S, Longo A, Toon S, Rolan P, Evans A M. Pharmacokinetics of propionyl-L-carnitine in humans: evidence for saturable tubular reabsorption. *Br J Clin Pharmacol*. 2000 Nov;50(5):441-8.

[3] Stasi M A, Scioli M G, Arcuri G, et al. Propionyl-L-carnitine improves postischemic blood flow recovery and arteriogenic revascularization and reduces endothelial NADPH-oxidase 4-mediated superoxide production. *Arterioscler Thromb Vasc Biol*. 2010 Mar;30(3):426-35.

[4] Ferrari R, Ceconi C, Cargnoni A, et al. The effect of propionyl-L-carnitine on the ischemic and reperfused intact myocardium and on their derived mitochondria. *Cardiovasc Drugs Ther*. 1991 Feb;5 Suppl 1:57-65.

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