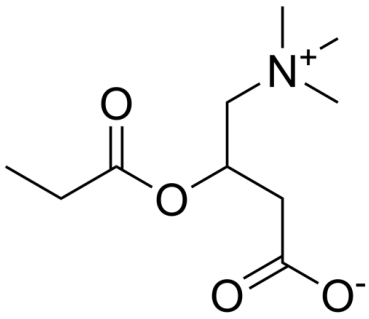
Data Sheet

Product Name:	Propionylcarnitine
Cat. No.:	CS-0059547
CAS No.:	17298-37-2
Molecular Formula:	$C_{10}H_{19}NO_4$
Molecular Weight:	217.26
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Solubility:	DMSO : 125 mg/mL (ultrasonic);H_2O : 100 mg/mL (ultrasonic)



BIOLOGICAL ACTIVITY:

Propionylcarnitine is metabolized by carnitine acetyltransferase from propionyl-CoA. Increased propionylcarnitine is regarded as a biomarker of vitamin B12 deficiency[1][2]. ***In Vitro:*** Propionylcarnitine shows protection to beta-thalassaemic erythrocytes from oxidative stress[3].

Propionylcarnitine increases production of $^{14}CO_2$ from [1-^{14}C]pyruvate and increases the rate of formation of acetyl camitine from pyruvate[4].

Propionylcarnitine allows the endothelial cells to maintain their functionality and regulatory role on vessel activity for a longer time and decreases the formation of oxygen reactive species due to xanthine oxidase activity on hypoxanthine formed by adenine nucleotide catabolism[6]. ***In Vivo:*** Propionylcarnitine (2 mM/kg; p.o. for 4 weeks) affects plasma and urine total carnitine concentrations of mice[3].

References:

[1]. Jacobs PL, et al. Glycine propionyl-L-carnitine produces enhanced anaerobic work capacity with reduced lactate accumulation in resistance trained males. J Int Soc Sports Nutr. 2009;6:9. Published 2009 Apr 2.

[2]. Kowal A, et al. Propionylcarnitine and methionine concentrations in newborns with hypospadias. Cent European J Urol. 2013;66(3):377-380.

[3]. Palmieri L, et al. Protection of beta-thalassaemic erythrocytes from oxidative stress by propionyl carnitine. Int J Tissue React. 1994;16(3):121-9.

[4]. Tassani V, et al. Anaplerotic effect of propionyl carnitine in rat heart mitochondria. Biochem Biophys Res Commun. 1994 Mar 15;199(2):949-53.

[5]. Morand R, et al. Effect of carnitine, acetyl-, and propionylcarnitine supplementation on the body carnitine pool, skeletal muscle composition, and physical performance in mice. Eur J Nutr. 2014 Sep;53(6):1313-25.

[6]. Bertelli A, et al. Effect of propionyl carnitine on energy charge and adenine nucleotide content of cardiac endothelial cells during hypoxia. Int J Tissue React. 1991;13(1):37-40.

CAIndexNames:

1-Propanaminium, 3-carboxy-N,N,N-trimethyl-2-(1-oxopropoxy)-, inner salt

SMILES:

CCC(OC(CC([O-])=O)C[N+](C)(C)C)=O

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

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