



<b>Catalog Number:</b>	MC11085	<b>Product Type:</b>	Small Molecule
<b>Bio-Activity:</b>	Carnitine palmitoyltransferase inhibitor	<b>CAS #:</b>	828934-41-4
<b>Research Categories:</b>	Oxidative stress, immunology, diabetes, cancer, heart disease	<b>Chemical Name:</b>	(R)-(+)-2-[6-(4-Chlorophenoxy)hexyl]-oxirane-2-carboxylic acid sodium salt
<b>Solubility:</b>	Soluble in DMSO (up to 5 mg/ml with warming)	<b>Molecular Formula:</b>	C <sub>15</sub> H <sub>18</sub> ClO <sub>4</sub> ·Na
<b>Purity:</b>	> 98%	<b>Molecular Weight:</b>	320.74
<b>Format:</b>	Powder	<b>Ship Temp:</b>	Ambient
<b>Storage:</b>	-20°C		

### Application Notes

#### Description/Data:

Etomoxir (828934-41-4) is an irreversible inhibitor of mitochondrial carnitine palmitoyl transferase 1 (CPT1) [1]. It is widely used to study fatty acid oxidation. Etomoxir has been investigated as a therapeutic agent for heart disease [2], diabetes [3], and cancer [4,5]. Use of etomoxir in concentrations greater than 5  $\mu$ M induces acute production of ROS with associated evidence of severe oxidative stress in proliferating T cells indicating a loss of specificity for CPT1 at these concentrations [6]. 200  $\mu$ M etomoxir inhibited complex I of the electron transport chain [7].

#### References:

- 1) Agius et al. (1991), Stereospecificity of the inhibition of etomoxir of fatty acid and cholesterol synthesis in isolated rat hepatocytes; *Biochem.Pharmacol.* 42 1717
- 2) Lionetti et al. (2011), Modulating fatty acid oxidation in heart failure; *Cardiovasc. Res.* 90 202
- 3) Huebinger et al. (1997), Effects of the carnitine-acyltransferase inhibitor etomoxir on insulin sensitivity, energy expenditure, and substrate oxidation in NIDDM; *Horm.Metab.Res.* 29 436
- 4) Pike et al. (2011), Inhibition of fatty acid oxidation by etomoxir impairs NADPH production and increases reactive oxygen species resulting in ATP depletion and cell death in human glioblastoma cells; *Biochim.Biophys. Acta* 1807 726

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5) Samudio et al. (2010), Pharmacologic inhibition of fatty acid oxidation sensitizes human leukemia cells to apoptosis induction; J.Clin.Invest. 120 142

6) O'Connor et al. (2018), The CPT1a inhibitor, etomoxir, induces severe oxidative stress at commonly used concentrations; Sci.Rep, 8 6289

7) Yao et al. (2018), Identifying off-target effects of etomoxir reveals that carnitine palmitoyltransferase I is essential for cancer cell proliferation independent of  $\beta$ -oxidation; PLoS Biol. 16 e2003782

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