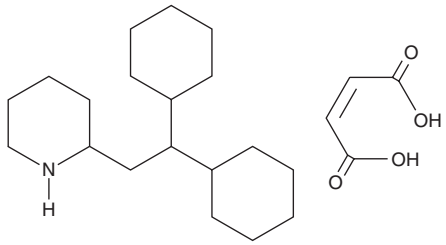
PRODUCT INFORMATION

Perhexiline (maleate)

Item No. 16982

CAS Registry No.:	6724-53-4
Formal Name:	2-(2,2-dicyclohexylethyl)-piperidine, 2Z-butenedioate
MF:	$C_{19}H_{35}N \bullet C_4H_4O_4$
FW:	393.6
Purity:	≥95%
UV/Vis.:	λ_{max}: 210 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

Perhexiline (maleate) is supplied as a crystalline solid. A stock solution may be made by dissolving the perhexiline (maleate) in the solvent of choice, which should be purged with an inert gas. Perhexiline (maleate) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of perhexiline (maleate) in these solvents is approximately 5, 30, and 25 mg/ml, respectively.

Perhexiline (maleate) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, perhexiline (maleate) should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Perhexiline (maleate) has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Perhexiline is a carnitine palmitoyltransferase 1 (CPT1) and CPT2 inhibitor that was originally developed as an anti-anginal drug in the 1970s.[1-3] It inhibits rat heart and liver CPT1 (IC_{50} = 77 and 148 µM, respectively) and rat heart CPT2 (IC_{50} = 79 µM).[1,2] Inhibition of CPT reduces uptake of long-chain fatty acids into the mitochondria, thereby shifting cellular metabolism from β-oxidation to glycolysis. Perhexilin inhibits mTORC1 signaling at 10 µM and induces autophagy ~7-fold at a concentration of 10 µM in MCF-7 cells.[4]

References

1. Kennedy, J.A., Unger, S.A., and Horowitz, J.D. Inhibition of carnitine palmitoyltransferase-1 in rat heart and liver by perhexiline and amiodarone. *Biochem. Pharmacol.* **52(2)**, 273-280 (1996).
2. Kennedy, J.A., Kiosoglous, A.J., Murphy, G.A., *et al.* Effect of perhexiline and oxfenicine on myocardial function and metabolism during low-flow ischemia/reperfusion in the isolated rat heart. *J. Cardiovasc. Pharmacol.* **36(6)**, 794-801 (2000).
3. Ashrafian, H., Horowitz, J.D., and Frenneaux, M.P. Perhexiline. *Cardiovasc. Drug Rev.* **25(1)**, 76-97 (2007).
4. Balgi, A.D., Fonseca, B.D., Donohue, E., *et al.* Screen for chemical modulators of autophagy reveals novel therapeutic inhibitors of mTORC1 signaling. *PLoS One* **4(9)**, 1-15 (2009).

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