

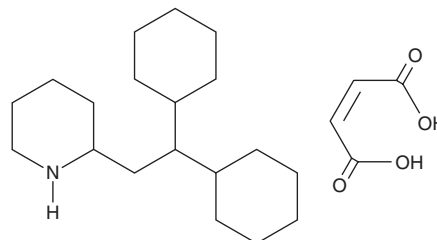
# PRODUCT INFORMATION



## Perhexiline (maleate)

Item No. 16982

**CAS Registry No.:** 6724-53-4  
**Formal Name:** 2-(2,2-dicyclohexylethyl)-piperidine, 2Z-butenedioate  
**MF:**  $C_{19}H_{35}N \cdot C_4H_4O_4$   
**FW:** 393.6  
**Purity:**  $\geq 95\%$   
**UV/Vis.:**  $\lambda_{max}$ : 210 nm  
**Supplied as:** A crystalline solid  
**Storage:**  $-20^{\circ}C$   
**Stability:**  $\geq 2$  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.<sup>1-3</sup> It inhibits rat heart and liver CPT1 ( $IC_{50} = 77$  and  $148 \mu M$ , respectively) and rat heart CPT2 ( $IC_{50} = 79 \mu M$ ).<sup>1,2</sup> Inhibition of CPT reduces uptake of long-chain fatty acids into the mitochondria, thereby shifting cellular metabolism from  $\beta$ -oxidation to glycolysis. Perhexiline inhibits mTORC1 signaling at  $10 \mu M$  and induces autophagy  $\sim 7$ -fold at a concentration of  $10 \mu M$  in MCF-7 cells.<sup>4</sup>

### 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).

#### 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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