Product Information

Mildronate (hydrate)
Item No. 15997

CAS Registry No.: 86426-17-7
Formal Name: 2-(2-carboxyethyl)-1,1,1-trimethyl-hydrazinium inner salt, dihydrate
Synonyms: Meldonium, MET-88, Quaterine, THP
MF: C₆H₁₄N₂O₂ • 2H₂O
FW: 182.2
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid

Laboratory Procedures

For long term storage, we suggest that mildronate (hydrate) be stored as supplied at -20°C. It should be stable for at least two years.

Mildronate (hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the mildronate (hydrate) in the solvent of choice. Mildronate (hydrate) is soluble in ethanol at a concentration of approximately 25 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of mildronate (hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of mildronate (hydrate) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Mildronate is a structural analog of γ-butyrobetaine (γBB), an intermediate in the biosynthesis of carnitine. It blocks carnitine synthesis by inhibiting γBB hydroxylase (IC₅₀ = 62 μM) and, less potently, carnitine acetyltransferase (Kᵣ = 1.6 mM). 1-3 Through these actions, mildronate reduces the levels of free carnitine and long chain acyl carnitine. 4-5 This leads to suppressed fatty acid metabolism and mitochondrial uncoupling during oxidative conditions, resulting in cardioprotective and neuroprotective effects. 4-6 Mildronate also improves cognition and reduces amyloid-β pathology in a mouse model of Alzheimer’s disease. 7

References

Related Products
For a list of related products please visit: www.caymanchem.com/catalog/15997

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Safety Data Sheet, which has been sent to your institution.

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