

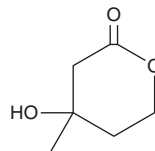
PRODUCT INFORMATION



DL-Mevalonolactone

Item No. 20348

CAS Registry No.: 674-26-0
Formal Name: tetrahydro-4-hydroxy-4-methyl-2H-pyran-2-one
Synonyms: DL-Mevalonic Acid Lactone, (±)-Mevalonolactone, NSC 90804
MF: C₆H₁₀O₃
FW: 130.1
Purity: ≥95%
Supplied as: A neat oil
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

DL-Mevalonolactone is supplied as a neat oil. A stock solution may be made by dissolving the DL-mevalonolactone in the solvent of choice, which should be purged with an inert gas. DL-Mevalonolactone is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of DL-mevalonolactone in ethanol is approximately 20 mg/ml and approximately 10 mg/ml in DMSO and DMF.

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 DL-mevalonolactone can be prepared by directly dissolving the neat oil in aqueous buffers. The solubility of DL-mevalonolactone in PBS, pH 7.2, is approximately 0.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

DL-Mevalonolactone is the δ -lactone form of mevalonic acid, a precursor in the mevalonate pathway.¹ It induces depolarization and swelling, decreases NADPH content and aconitase (ACO) activity, and increases malondialdehyde (MDA) production in calcium-loaded rat brain mitochondria.² DL-Mevalonolactone reverses decreases in glucose uptake induced by simvastatin (Item Nos. 10010344 | 10010345) in L6 myotubes.³ Tissue levels and urinary excretion of DL-mevalonolactone are increased in patients with mevalonic aciduria, a disorder characterized by a deficiency in mevalonic kinase activity.²

References

1. Domingos, S.R., Pérez, C., and Schnell, M. On the structural intricacies of a metabolic precursor: Direct spectroscopic detection of water-induced conformational reshaping of mevalonolactone. *J. Chem. Phys.* **147**(12), 124310 (2017).
2. Cecatto, C., Amaral, A.U., da Silva, J.C., *et al.* Mevalonolactone disrupts mitochondrial functions and induces permeability transition pore opening in rat brain mitochondria: Implications for the pathogenesis of mevalonic aciduria. *Neurochem. Int.* **108**, 133-145 (2017).
3. Yaluri, N., Modi, S., and Kokkola, T. Simvastatin induces insulin resistance in L6 skeletal muscle myotubes by suppressing insulin signaling, GLUT4 expression and GSK-3 β phosphorylation. *Biochem. Biophys. Res. Commun.* **480**(20), 194-200 (2016).

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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