

## D-(+)-Malic acid

## Chemical Properties

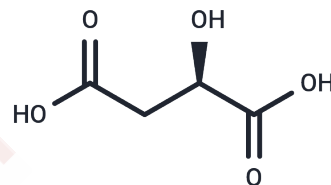
CAS No. : 636-61-3

Formula: C<sub>4</sub>H<sub>6</sub>O<sub>5</sub>

Molecular Weight: 134.09

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



## Biological Description

Description	D-(+)-Malic acid ((R)-Malic acid) is a dicarboxylic acid that is made by all living organisms. Malic acid has two stereoisomeric forms (L- and D-enantiomers). The malate anion is an intermediate in the citric acid cycle.
Targets(IC50)	Others,Endogenous Metabolite

## Solubility Information

Solubility	H <sub>2</sub> O: 37.5 mg/mL (279.66 mM),Sonication is recommended. Ethanol: 37.5 mg/mL (279.66 mM),Sonication is recommended. DMSO: 60 mg/mL (447.46 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (14.92 mM),Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

## Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	7.4577 mL	37.2884 mL	74.5768 mL
5 mM	1.4915 mL	7.4577 mL	14.9154 mL
10 mM	0.7458 mL	3.7288 mL	7.4577 mL
50 mM	0.1492 mL	0.7458 mL	1.4915 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

Kiyoshi Nakayama, et al. D-malic acid production from maleic acid using microorganism: Screening of microorganism. *Biotechnology Letters* volume 15, 271-276(1993).

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Francis BR, Watkins K, Kubelka J. Double Hydrogen Bonding between Side Chain Carboxyl Groups in Aqueous Solutions of Poly ( $\beta$ -L-Malic Acid): Implication for the Evolutionary Origin of Nucleic Acids. *Life (Basel)*. 2017 Aug 28;7(3). pii: E35.

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Tel:781-999-4286 E\_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481