

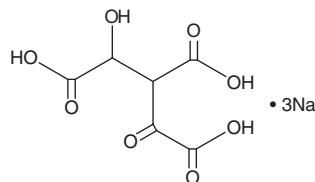
Product Information



Oxalomalic Acid (sodium salt)

Catalog No. 13521

CAS Registry No.: 89304-26-7
Formal Name: 3-carboxy-3-deoxy-2-pentulosaric acid, trisodium salt
MF: C₆H₆O₈ • 3Na
FW: 275.0
Purity: ≥95%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

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

Oxalomalic acid (sodium salt) is supplied as a crystalline solid. For biological experiments, we suggest that organic solvent-free aqueous solutions of oxalomalic acid (sodium salt) be prepared by directly dissolving the crystalline compound in water. We do not recommend storing the aqueous solution for more than one day.

Aconitase catalyzes the stereospecific isomerization of citrate to isocitrate in the first step of the citric acid cycle. It acts as an iron regulatory protein (IRP), controlling the translation of proteins involved in iron metabolism when iron is scarce and resumes aconitase activity when iron is abundant. Aconitase is now recognized as a regulator of iron-induced glutamate production.¹ Oxalomalic acid, formed by the condensation of oxaloacetate with glyoxylate *in vivo*, inhibits both aconitase and NADP-dependent isocitrate dehydrogenase in the conversion of citrate to isocitrate at concentrations as low as 1 mM.² At 5 mM, oxalomalic acid inhibition of aconitase leads to a decrease in the binding activity of IRP1 and a decrease in glutamate secretion in cultured lens epithelial cells, retinal pigment epithelial cells, and neurons.^{2,3}

References

1. Gerber, D.E. EGFR inhibition in the treatment of non-small cell lung cancer. *Drug Dev Res* **69**(6), 359-372 (2008).
2. Ruffo, A., Testa, E., Adinolfi, A., *et al.* Control of the citric acid cycle by glyoxylate. Mechanism of the inhibition by oxomalate and γ -hydroxy- α -oxoglutarate. *Biochem. J.* **103**, 19-23 (1967).
3. Festa, M., Colonna, A., Pietropaolo, C., *et al.* Oxomalate, a competitive inhibitor of aconitase, modulates the RNA-binding activity of iron-regulatory proteins. *Biochem. J.* **348**, 315-320 (2000).
4. McGahan, M.C., Harned, J., Mukunnenkeril, M., *et al.* Iron alters glutamate secretion by regulating cytosolic aconitase activity. *Am J Physiol Cell Physiol* **288**, 1117-1124 (2005).

Related Product

Aconitase Assay Kit - Cat. No. 705502

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

MATERIAL 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 Material Safety Data Sheet, which has been sent via email to your institution.

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