

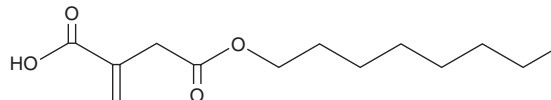
PRODUCT INFORMATION



4-octyl Itaconate

Item No. 25374

CAS Registry No.: 3133-16-2
Formal Name: 2-methylene-butanedioic acid, 4-octyl ester
MF: C₁₃H₂₂O₄
FW: 242.3
Purity: ≥98% (mixture of tautomers)
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

4-octyl Itaconate is supplied as a crystalline solid. A stock solution may be made by dissolving the 4-octyl itaconate in the solvent of choice. 4-octyl Itaconate is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of 4-octyl itaconate in these solvents is approximately 30 mg/ml.

Description

4-octyl Itaconate is a prodrug form of itaconate, an endogenous cellular metabolite produced via decarboxylation of *cis*-aconitate by the enzyme encoded by *IRG1*.^{1,2} It is hydrolyzed to itaconate by esterases in C2C12 cells and LPS-activated mouse macrophages where it acts as a regulator of macrophage function with anti-inflammatory properties.² 4-octyl Itaconate increases nuclear factor erythroid 2-related factor 2 (Nrf2) protein levels and expression of Nrf2 target genes and enhances LPS-induced Nrf2 stabilization in mouse macrophages. *In vivo*, 4-octyl itaconate (50 mg/kg) decreases serum levels of IL-1β and TNF-α, increases Nrf2 protein expression, and protects against LPS-induced lethality in wild-type, but not Nrf2 knockout, mice.

References

1. Michelucci, A., Cordes, T., Ghelfi, J., *et al.* Immune-responsive gene 1 protein links metabolism to immunity by catalyzing itaconic acid production. *Proc. Natl. Acad. Sci. U.S.A.* **110**(19), 7820-7825 (2013).
2. Mills, E.L., Ryan, D.G., Prag, H.A., *et al.* Itaconate is an anti-inflammatory metabolite that activates Nrf2 via alkylation of KEAP1. *Nature* **556**(7699), 113-117 (2018).

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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 02/25/2019

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM