

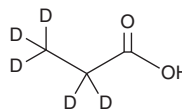
PRODUCT INFORMATION



Propionic Acid-d₅

Item No. 39159

CAS Registry No.: 60153-92-6
Formal Name: propanoic-d₅ acid
Synonyms: FA 3:0-d₅, Propanoic Acid-d₅, Propionate-d₅
MF: C₃HD₅O₂
FW: 79.1
Chemical Purity: ≥95% (propionic acid)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₅); ≤1% d₀
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

Propionic acid-d₅ is intended for use as an internal standard for the quantification of propionic acid by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Propionic acid-d₅ is supplied as a neat oil. A stock solution may be made by dissolving the propionic acid-d₅ in the solvent of choice. Propionic acid-d₅ is soluble in methanol, which should be purged with an inert gas. It is also soluble in water. We do not recommend storing the aqueous solution for more than one day.

Description

Propionic acid is a short-chain fatty acid.¹ It is produced predominately by bacterial fermentation of dietary fiber in the colon but is also found in various dairy products such as yogurt.^{1,2} Propionic acid is an agonist of free fatty acid receptor 2 (FFAR2/GPR43) and FFAR3/GPR41.³ It inhibits forskolin-induced cAMP accumulation in CHO-K1 cells expressing FFAR2/GPR43 or FFAR3/GPR41 (EC₅₀s = 14 and 6.2 μM, respectively) and induces chemotaxis of polymorphonuclear (PMN) neutrophils when used at a concentration of 1 mM. Propionic acid inhibits the proliferation of isolated mouse splenic B lymphocytes induced by concanavalin A (Item No. 14951) or LPS (IC₅₀s = 6.6 and 4.6 mM, respectively).⁴ It is active against *P. aeruginosa*, *E. coli*, *K. pneumoniae*, and *P. mirabilis* when used at a concentration of 20 mM.⁵ Subgingival plaque levels of propionic acid are increased in patients with severe gingivitis.⁶

References

1. Wang, M., Wichienchot, S., He, X., et al. *Trends Food Sci. Technol.* **88(1)**, 1-9 (2019).
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3. Le Poul, E., Loison, C., Struyf, S., et al. *J. Biol. Chem.* **278(28)**, 25481-24591 (2003).
4. Kurita-Ochiai, T., Fukushima, K., and Ochiai, K. *J. Dent. Res.* **74(7)**, 1367-1373 (1995).
5. Levison, M.E. *Infect. Immun.* **8(1)**, 30-35 (1973).
6. Niederman, R., Buyle-Bodin, Y., Lu, B.Y., et al. *J. Dent. Res.* **76(1)**, 575-579 (1997).

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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